

ORIGINAL CONTRACT

VILLAGE OF ORLAND PARK, ILLINOIS

2007-0561

NOTICE TO BIDDERS, INSTRUCTIONS TO BIDDERS, PROPOSAL, BID BOND,
AGREEMENT, PERFORMANCE BOND AND SPECIFICATIONS

FOR

HIGH SERVICE PUMPS UPGRADE

VILLAGE OFFICIALS

Daniel J. McLaughlin, President

TRUSTEES

Bernard A. Murphy
Kathleen M. Fenton
Brad S. O'Halloran
James V. Dodge, Jr.
Edward G. Schussler
Patricia Gira

VILLAGE CLERK

David P. Maher

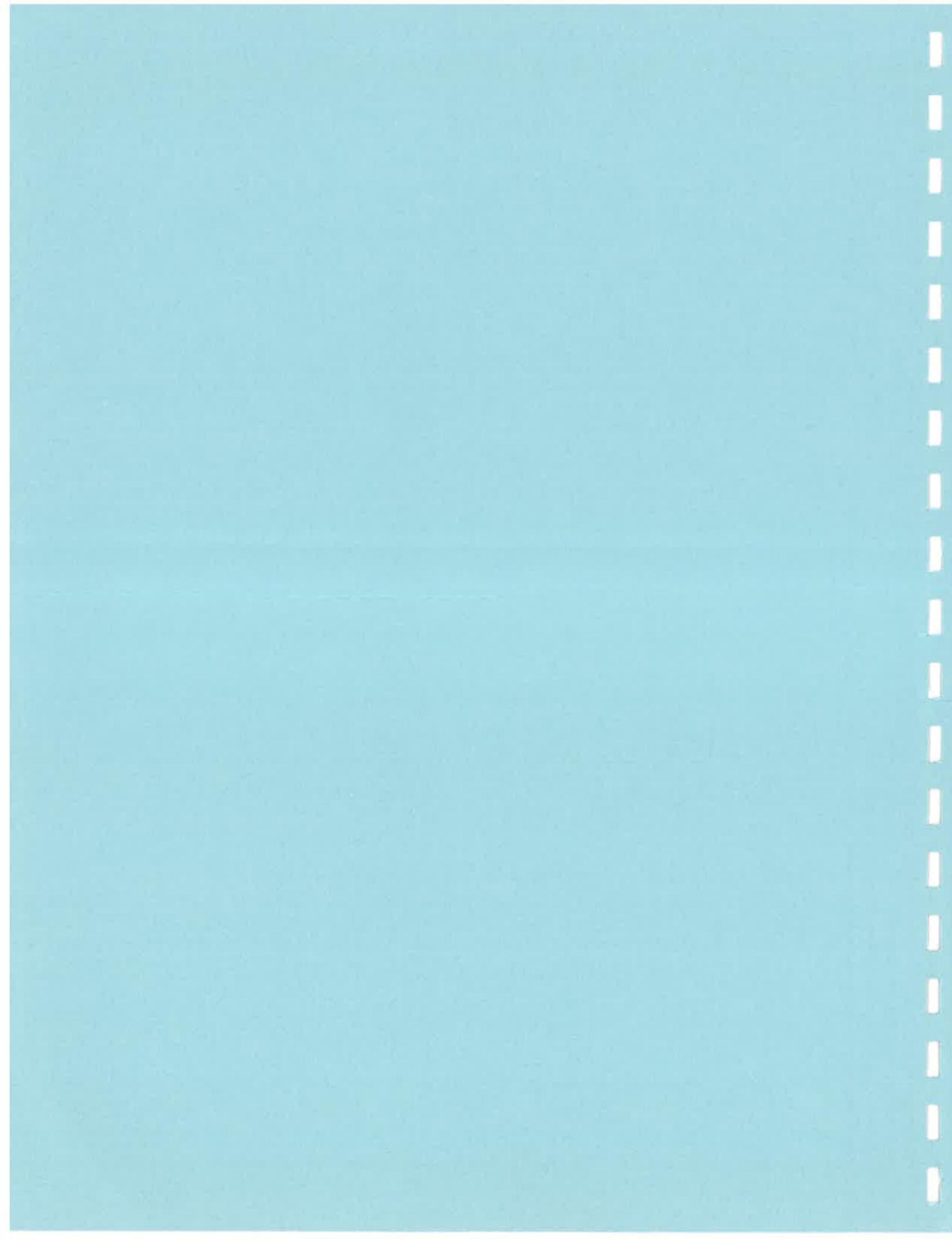
GREELEY AND HANSEN LLC

100 S. Wacker Drive, Suite 1400
Chicago, Illinois 60606

August 2007



LICENSE EXPIRES 11/30/2007
SIGNED 08/02/2007



**VILLAGE OF
ORLAND PARK, ILLINOIS**

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100 S. Wacker Drive, Suite 1400
Chicago, Illinois 60606

August 2007



Kenneth Johnson
LICENCE EXPIRES 11/30/2007
SIGNED 08/02/2007

SECTION 00010

VILLAGE OF ORLAND PARK
COOK COUNTY, ILLINOIS

HIGH SERVICE PUMPS UPGRADE

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SECTION 00100

NOTICE TO BIDDERS

VILLAGE OF ORLAND PARK
COOK COUNTY, ILLINOIS

HIGH SERVICE PUMPS UPGRADE

Sealed Bids for High Service Pumps Upgrade, invited by the Board of Trustees of the Village of Orland Park, County of Cook, State of Illinois, will be received by the Village Clerk of the Village of Orland Park, 14700 Ravinia Avenue, Orland Park, Illinois, 60462, on August 29, 2007 at 11:00 a.m. Prevailing Time. All sealed bids must be submitted to the Village of Orland Park – Clerk's Office, located at the previously stated address. All sealed bids submitted properly will be publicly opened and read aloud immediately following the stated submission time.

The Work comprises furnishing all labor, materials, equipment, supplies and services for the replacement of two high service pumps at the existing Main Pumping Station (8800 Thistlewood Lane, Orland Park) and associated electrical equipment, including all miscellaneous and appurtenant work for a complete and ready-to-use installation.

A pre-bid conference will be held at 10:00 a.m. on August 21, 2007 at the Village of Orland Park Public Works located at 15655 S. Ravinia Avenue, Orland Park, Illinois 60462. Prospective Bidders are not required to attend the conference. Following the pre-bid conference, prospective bidders will be provided access to the Main Pumping Station until 3:00 p.m. on August 21, 2007.

The Bidding and Contract Documents, including Instructions to Bidders, Bid Form, Form of Bid Bond, Agreement, Form of Performance Bond, Form of Payment Bond, General and Supplementary Conditions, Specifications, Drawings, and Addenda, if any, may be obtained for examination at the Village of Orland Park – Clerk's Office or at the offices of Greeley and Hansen, 100 South Wacker Drive, Chicago, Illinois 60606. Copies of these Contract Documents may be obtained from Greeley and Hansen upon the payment of a non-refundable charge of seventy-five dollars (\$75.00) for each set of bid documents. Make checks payable to Greeley and Hansen, LLC.

No bid shall be withdrawn after the opening without the consent of the Village for a period of 60 days after the scheduled time of opening and reading of the bids.

Each Bid must be accompanied by a certified or bank cashier's check on a solvent bank or trust company, drawn to the order of the Village of Orland Park, or an acceptable Bid Bond on the form attached, in an amount of not less than ten percent of the total bid. This sum is a guarantee that, if the Bid is accepted, a contract will be entered into and its performance properly secured. The successful bidder will be required to furnish satisfactory performance and payment bonds for the full amount of the executed Contract.

The President and Board of Trustees reserves the right to reject any or all bids or parts thereof and to waive any informalities, technicalities and irregularities in the bids and to disregard all non-conforming or conditional bids and to hold the bids for sixty (60) days from the opening above set forth.

The successful bidder shall be required to comply with the provisions of all State of Illinois and federal laws concerning public works projects, as well as the State of Illinois Human Rights Act and the regulations of the Illinois Human Rights Commission. Any contract executed is subject to the Illinois Prevailing Wage Act.

By order of the President and Board of Trustees of the Village of Orland Park, Cook County, Illinois.

President and Board of Trustees
Village of Orland Park

By: David P. Maher
Village Clerk

Dated _____

SECTION 00200
INSTRUCTIONS TO BIDDERS

ARTICLE 1 DEFINED TERMS

1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:

- A. Bidder - The individual or entity who submits a Bid directly to OWNER.
- B. Issuing Office - The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
- C. Successful Bidder - The lowest, responsible Bidder submitting a responsive Bid to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.

ARTICLE 2 COPIES OF BIDDING DOCUMENTS

2.01 Refer to the Notice to Bidders for information on how and where copies of the Bidding Documents may be examined or obtained.

2.02 Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents or documents obtained from third party sources.

2.03 OWNER and ENGINEER in making copies of Bidding Documents available do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

2.04 The Plans which are applicable to this Contract are titled as follows:

VILLAGE OF ORLAND PARK, ILLINOIS
LAKE MICHIGAN WATER SUPPLY
HIGH SERVICE PUMPS UPGRADE

2.05 The Plans are attached hereto and consist of the following:

<u>Sheet No.</u>	<u>Title</u>
M1	Mechanical - Plans and Sections
E1	Electrical – Symbol List
E2	Electrical – Motor Control Center MCC-1
	Partial One Line Diagram
E3	Electrical – Plan at FL EL 696'-6" and Details

ARTICLE 3 QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, within five days of OWNER's request, Bidder shall submit written evidence such as financial data, previous experience, additional references, present commitments and other such data as may be requested.

ARTICLE 4 EXAMINATION OF CONTRACT DOCUMENTS, OTHER RELATED DATA, AND SITE

4.01 On request, OWNER will provide plan holders access to the Pumping Station for the purpose of viewing existing equipment arrangements and taking such measurements as potential bidders may deem necessary. Access to the pump suction wells will not be possible as the pump station is in service. Site visit hours will be limited to 8:00 am to 3:00 pm. Contact John Ingram at (708) 403-6350 to arrange for site visits.

4.02 It is the responsibility of each Bidder before submitting a Bid to:

- A. Examine and carefully study the Bidding Documents, including any Addenda and the other related data identified in the Bidding Documents;
- B. Visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. Become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, or performance of the Work;
- D. Obtain and carefully study (or assume responsibility for doing so) all examinations, investigations, explorations, tests, studies, and data concerning conditions at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including any specific means, methods, techniques, sequences, and procedures of

construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;

- E. Agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;
- F. Become aware of the general nature of the work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents;
- G. Correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;
- H. Promptly give ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by ENGINEER is acceptable to Bidder, and
- I. Determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.03 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by ENGINEER are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 PREBID CONFERENCE

A pre-bid conference will be held at 10:00 a.m. on August 21, 2007 at the Village of Orland Park Public Works located at 15655 S. Ravinia Avenue, Orland Park, Illinois 60462. Representatives of OWNER and ENGINEER will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. ENGINEER will transmit to all prospective Bidders of record such Addenda as ENGINEER considers necessary in response to questions arising at the conference. Oral statements made during the prebid conference are not to be relied upon and will not be binding or legally effective. Following the pre-bid

conference, prospective bidders will be provided access to the Main Pumping Station until 3:00 p.m. on August 21, 2007.

ARTICLE 6 SITE AND OTHER AREAS

The Site is identified in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by CONTRACTOR.

ARTICLE 7 INTERPRETATIONS AND ADDENDA

7.01 No interpretation of the meaning of the Plans, Drawings or other Contract Documents will be made to any Bidder orally. All questions about the meaning or intent of the Bidding Documents are to be directed to ENGINEER in writing, addressed to: Greeley and Hansen, Attn: Ms. Beth Vogt, 100 South Wacker Drive, Suite 1400, Chicago, Illinois 60606. Questions may be sent via fax to Ms. Beth Vogt at 312-558-1986. Call Ms. Vogt at 312-578-2321 to advise her that a fax has been sent. Mail copies of all faxes sent to Ms. Vogt to her at the address given above. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda which, if issued, will be sent to all parties recorded by ENGINEER as having received the Bidding Documents, not later than 5 days prior to the date fixed for the Bid opening. Questions received less than seven days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

If requested, a copy of an Addendum will be given to a prospective Bidder's representative at the office of the ENGINEER. Failure of any Bidder to receive any addenda does not relieve said Bidder from any obligation under the Bid as submitted. All addenda issued become part of the Contract Documents.

7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by OWNER or ENGINEER.

ARTICLE 8 BID SECURITY

8.01 Each Bid must be accompanied by Bid Security made payable to OWNER in an amount of ten percent of Bidder's maximum Bid price and in the form of a certified or bank cashier's check or a Bid Bond, on the form attached, issued by a surety meeting the requirements of paragraphs 5.01 and 5.02 of the General and Supplementary Conditions. In Paragraph 6 of the attached Bid Bond form (Section 00430), the suit limitation of one year shall be stricken.

8.02 The bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within ten business days after the Notice of Award, OWNER may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of the seventh day after the Effective Date of the Agreement or the 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.

8.03 Bid security of other Bidders whom OWNER believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

ARTICLE 9 CONTRACT TIME

9.01 The number of days within which the Work is to be ready for Final Acceptance is set forth in the Agreement.

ARTICLE 10 LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages, if any, are set forth in the Agreement.

ARTICLE 11 SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is indicated in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in the General and Supplementary Conditions.

ARTICLE 12 SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 If the General and Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to OWNER in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five

days after Bid opening, submit to OWNER a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by OWNER. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, OWNER may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute in which case apparent Successful Bidder shall submit an acceptable substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and OWNER may consider such price adjustment in evaluating Bids and making the contract award.

- 12.02 If apparent Successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which OWNER or ENGINEER makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the Agreement as provided in paragraph 6.06 of the General and Supplementary Conditions.
- 12.03 CONTRACTOR shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom CONTRACTOR has reasonable objection.

ARTICLE 13 PREPARATION OF BID

- 13.01 All blanks on the Bid Form shall be completed by printing in blue or black ink and the Bid Form must be signed. A Bid price shall be indicated for each Bid item listed therein.
- 13.02 A bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.
- 13.03 A bid by a partnership shall be executed in the partnership name and signed by a partner, whose title must appear under the signature, accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

- 13.04 A bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown below the signature.
- 13.05 A bid by an individual shall show the Bidder's name and official address.
- 13.06 A bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture must be shown below the signature.
- 13.07 Print all names in black ink below the signatures.
- 13.08 Acknowledge receipt of all Addenda (the numbers of which must be filled in) on the Bid Form.
- 13.09 Show the address, telephone number, facsimile number and e-mail address for communications regarding the Bid.
- 13.10 Provide evidence of authority to conduct business as an out-of-state corporation in the state where the Work is to be performed in accordance with Part 3 above. Show state contractor license number, if any.

ARTICLE 14 BASIS OF BID, EVALUATION OF BIDS

- 14.01 Lump Sum
 - A. Bidders shall submit a Bid on a lump sum basis as set forth in the Bid Form.
- 14.02 The bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances, if any, named in the Contract Documents as provided in paragraph 11.02 of the General and Supplementary Conditions.

ARTICLE 15 SUBMITTAL OF BID

- 15.01 A bid shall be submitted no later than the time and place indicated in the Advertisement or Invitation to Bid and shall be enclosed in an opaque sealed envelope, marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted) and name and address of Bidder, and accompanied by the Bid security and other required documents. If the Bid is sent through the mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A mailed bid shall be addressed to, Village of Orland Park – Village Clerk, 14700 Ravinia Avenue, Orland Park, Illinois, 60462, and sent by Certified Mail or overnight courier. Mailed Bids must be received no later than the time fixed for opening Bids.

15.02 Bidder must submit three (3) complete, sealed, signed and attested copies of the bid, one (1) of which shall be a complete bound copy and two (2) of which shall be a complete, identical, unbound copy of the bid, free of staples and other fasteners, and shall have provided all requested information, and submitted all appropriate forms, certificates, affidavits and addendum acknowledgements in each copy in order to be considered responsive. The bound copy shall be the forms with the original signatures and the unbound copy may be photocopies (please include a photocopy of the bid bond or check in the unbound copies).

ARTICLE 16 MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

16.02 If, within 24 hours after Bids are opened, any Bidder files a duly signed, written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid and the Bid security will be returned. Thereafter, that Bidder will be disqualified from further bidding on the Work to be provided under the Contract Documents.

ARTICLE 17 OPENING OF BIDS

17.01 Bids will be opened at the time and place indicated in the advertisement or Invitation to Bid and, unless obviously nonresponsive, read aloud publicly.

ARTICLE 18 BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid form, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 AWARD OF CONTRACT

19.01 OWNER reserves the right to reject any or all Bids, including, without limitation, nonconforming, nonresponsive, unbalanced or conditional Bids. OWNER further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsible. OWNER may also reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that

any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 In evaluating Bids, OWNER will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

19.04 OWNER may conduct such investigations as OWNER deems necessary to establish the responsibility, qualifications and financial ability of Bidders to perform the Work in accordance with the Contract Documents.

19.05 Bidders shall provide the OWNER with the names and contact information of three (3) references for which they have performed similar work. The bidders grant the OWNER permission to contact said references and ask questions regarding prior work performance. OWNER shall use the information gained from bidder's references to further evaluate the bidders.

19.06 If the contract is to be awarded, OWNER will award the contract to the Bidder whose Bid will be in the best interests of the Project.

19.07 Award of the Contract is subject to Village of Orland Park Board of Trustees approval.

ARTICLE 20 CONTRACT SECURITY AND INSURANCE

20.01 Article 5 of the General and Supplementary Conditions sets forth OWNER's requirements as to Performance and Payment Bonds and insurance. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by such Bonds. In Paragraph 11 of the attached Payment Bond form (Section 00615), the suit limitation of one year shall be stricken. In Paragraph 9 of the attached Performance Bond form (Section 00610), the suit limitation of two years shall be stricken.

20.02 Insurance – Contractor shall purchase and maintain, at all times during the performance of the work under this Contract, insurance coverage, including Worker's Compensation, Automobile Liability, Comprehensive General Liability and Excess Liability in the amounts set forth in the Owner's Insurance Requirements Certification included as an attachment to this document, labeled Special Attachment No. 11. Contractor shall purchase and maintain, all other coverages required in Article 5 of the General and Supplementary Conditions. Bidders must sign and submit with the bid, the Insurance Requirements Certification, as recognition of the basic insurance coverages and amounts (hereinafter referred to as "coverage(s)") that will be required to be in place before the commencement of any Work by the successful bidder. By signing this form, the bidder is certifying that in the event the bidder does not already have

the required insurance coverages in place, that the bidder has checked with their insurance carrier and verified that the coverages requested will be able to be obtained by the bidder within ten (10) days after the date of the Notice of Award of the Contract. The bidder has the sole responsibility of verifying that the coverages will be available for purchase and has made any and all inquiries necessary to satisfy this requirement and fully inform themselves in regards to any additional policy premiums the successful bidder may incur as a result of obtaining said required coverages. The bidder also represents that they have taken the insurance requirements into account and at the bidders' sole discretion, has factored this into the bid prices submitted. The successful bidder is solely and entirely responsible for the payment of policy premiums and in no event will the Village of Orland Park be obligated to incur any additional expense, nor will the Village increase the amount of the Contract above the amount bid, as a result of any expense the successful bidder may incur to satisfy the obligations required herein.

Please submit with the bid, a current policy Specimen Certificate of Insurance showing the insurance coverages the bidder currently has in force.

Upon award of the contract, any insurance policies providing the coverages required of the Contractor shall be specifically endorsed to identify "The Village of Orland Park, and their respective officers, trustees, directors, employees and agents" as Additional Insureds on a primary/non-contributory basis with respect to all claims arising out of operations by or on behalf of the named insured. If the named insureds have other applicable insurance coverage, that coverage shall be deemed to be on an excess or contingent basis. The policies shall also contain a Waiver of Subrogation in favor of the Additional Insureds in regards to General Liability and Workers Compensation coverage's. The certificate of insurance shall also state this information on its face. Certificates of insurance must state that the insurer shall provide the Owner with thirty (30) days prior written notice of any change in, or cancellation of required insurance policies. The words "endeavor to" and ", but failure to do so shall impose no obligation or liability of any kind upon the insurer, its agents or representatives" must be stricken from all Certificates of Insurance submitted to the Owner, but failure of the insurer to strike this reference shall not be a waiver of the obligation to provide any written notice.

ARTICLE 21 SIGNING OF AGREEMENT

- 21.01 When OWNER gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within ten business days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER with the required Payment and Performance Bonds.
- 21.02 Within ten days thereafter, OWNER shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings.

ARTICLE 22 SALES AND USE TAXES

The OWNER is exempt from the Illinois Use Tax Act and the Retailers Occupation Tax. The OWNER's exemption identification number issued by the Illinois Department of Revenue is E9998-1807-05. Any taxes for which the OWNER is not exempt shall be paid by the CONTRACTOR. Refer to paragraph 6.10 of the General and Supplementary Conditions for additional information.

ARTICLE 23 RETAINAGE

Provisions concerning retainage are set forth in the Agreement.

END OF SECTION

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SECTION 00210
BID SUBMITTAL CHECKLIST

In order to be responsive, the bidder must submit all of the following items:

- Sealed Bid Envelope - Addressed to the Village of Orland Park, Village Clerk's Office, 14700 S. Ravinia Ave., Orland Park, Illinois 60462 and labeled **High Service Pumps Upgrade - Bid**, in the lower left hand corner.
- Bid - Bidder must submit three (3) complete, sealed, signed and attested copies of the bid, two (2) of which shall be unbound copies of the bid, and shall have provided all requested information, and submitted all appropriate forms certificates, affidavits and addendum acknowledgements in order to be considered responsive.
- Certified or Cashier's Check for Bid Bond for 10% of the bid amount
- All forms completed:
 - Bid Form (Section 00410)
 - Bid Bond Form (Section 00430)
 - References (Section 00820 Special Attachment No. 1)
 - Certification of Eligibility to enter into Public Contracts (Section 00820 Special Attachment No. 2)
 - Tax Certification (Section 00820 Special Attachment No. 3)
 - Certification of Compliance With the Illinois Prevailing Wage Act (Section 00820 Special Attachment No. 4)
 - Sexual Harassment Policy (Section 00820 Special Attachment No. 7)
 - Equal Employment Opportunity (Section 00820 Special Attachment No. 8)
 - Apprenticeship and Training Program Certification (Section 00820 Special Attachment No. 9)
 - Insurance Requirements (Section 00820 Special Attachment No. 11)
- A current policy Specimen Certificate of Insurance showing Bidder's current coverages.

END OF SECTION

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COPY

SECTION 00410

BID FORM

To the President and Board of Trustees of the Village of Orland Park, 14700 Ravinia Avenue, Orland Park, Illinois, 60462:

For the replacement of two high service pumps at the Main Pumping Station.

Date of Bid August 29, 2007

Made by _____

Name of Bidder Meccon Industries, Inc.
(Individual, firm, corporation, or joint venture as case may be)

Business Address of Bidder 2703 Bernice Road, Lansing, Illinois 60438

Bidder's Telephone Number (708) 474-8300

Bidder's Fax Number (708) 474-8310

Bidder's E-Mail Address info@meccon.com

Residence Address of Bidder (If an individual) _____

(If Bidder is a firm, fill in the names and addresses of all partners in the following blanks)

Names of Partners

Addresses of Partners

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

(If Bidder is a corporation, fill in the following blanks):

Organized under the laws of the State of Delaware

Name and Address of President John D. Curran
1245 Braeburn, Flossmoor, IL 60422

Name and Address of Vice President Paul R. Curran
12612 - 82nd Ave., Palos Park, IL 60464

Name and Address of Secretary Stephen D. Curran
1522 Coventry, Munster, IN 46312

Name and Address of Treasurer Stephen D. Curran
1522 Coventry, Munster, IN 46312

(If the Bidder is a joint venture, fill in the following blanks):

Made by _____

Name of Bidder _____
(Individual firm or corporation as the case may be)

Place of Business of Bidder _____

Made by _____

Name of Bidder _____
(Individual firm or corporation as the case may be)

Place of Business of Bidder _____

Made by _____

Name of Bidder _____
(Individual firm or corporation as the case may be)

Place of Business of Bidder _____

(Each joint venture member must be listed whether individual, partnership and corporation)

1.01 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Bidding Documents, subject to modification, to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

2.01 Bidder accepts all of the terms and conditions of the Notice to Bidders and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the day of Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER.

3.01 In submitting this Bid, Bidder represents, set forth in the Agreement, that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all which is hereby acknowledged:

Addendum No. N/A Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: drawings of physical conditions in or relating to existing structures and equipment which have been identified in paragraph 4.02 of the General and Supplementary Conditions. Bidder accepts the determination set forth in paragraph 4.02 of the General and Supplementary Conditions of the extent of the "technical data" contained in such reports and drawings upon which Bidder is entitled to rely as provided in paragraph 4.02 of the General and Supplementary Conditions. Bidder acknowledges that such reports and drawings are not Contract Documents and may not be complete for Bidder's purposes. Bidder acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Bidding Documents with respect to Underground Facilities at or contiguous to the site.

E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site or otherwise which may affect cost, progress, or

performance of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.

- F. Bidder does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the determination of this Bid for performance and furnishing of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies and data with the Bidding Documents.
- I. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.
- J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance of the Work for which this Bid is submitted.
- K. Bidder is not in arrears to the Village of Orland Park, upon debt or contract; is not a defaulter, as surety or otherwise, upon any obligation to the Village of Orland Park; and has not been delinquent or unfaithful in any former contract with the Village of Orland Park.
- L. That no officer or employee or person whose salary is payable in whole or in part by the Owner is, shall be or become interested, directly or indirectly, as a contracting party, partner, stockholder, surety or otherwise, in this Bid, or in the performance of the Contract, or in the supplies, materials, or equipment and Work or labor to which it relates, or in any portion of the profits thereof.
- M. Bidder is a duly registered Contractor in the State of Illinois and has been issued registration No. 055-002893. (A successful Bidder who fails to list his registration number, shall furnish proof of possession thereof before the Contract will be awarded.)
- N. Bidder has submitted a copy of their current policy specimen certificate of insurance, demonstrating their coverages. If current coverages do not meet the minimum requirements as stated in the bid documents, the bidder agrees to

purchase, at their own expense, upon award of the contract, the required coverages.

- O. Bidder has provided the names and contact information of three (3) references for which they have performed similar work by completing the form in Special Attachment No. 1, Section 00820. The Bidder grants the OWNER permission to contact said references and ask questions regarding prior work performance.

4.01 The bidder agrees to observe and comply at all times with all laws, ordinances and regulations of the federal, state, local and Village governments, which may in any manner affect the preparation of bids or the performance of the Contract. In submitting this Bid, Bidder represents that:

- A. Bidder is in compliance with Section 33E of State of Illinois Criminal Code of 1961 and has completed the Certification of Eligibility to Enter into Public Contracts, Special Attachment No. 2 in Section 00820.
- B. Bidder is not delinquent in payment of any tax administered by the Illinois Department by completing the Tax Certification, Special Attachment No. 3 in Section 00820.
- C. Bidder agrees to comply with the Illinois Prevailing Wage Act (820 ILCS 130/0.01, et seq.) and has completed the Certification of Compliance with the Illinois Prevailing Wage Act, Special Attachment No. 4 in Section 00820. Not less than the Prevailing Rate of Wages as found by the Village of Orland Park or the Department of Labor shall be paid to laborers, workmen, and mechanics performing work under the Contract. If awarded the Contract, contractor must comply with all provisions of the Illinois Prevailing Wage Act, including, but not limited to, providing certified payroll records to the Village Clerk. Contractor and subcontractors shall be required to comply with all applicable federal laws, state laws and regulations regarding minimum wages, limit on payment to minors, minimum fair wage standards for minors, payment of wage due employees, and health and safety of employees. Contractor and subcontractor are required to pay employees all rightful salaries, medical benefits, pension and social security benefits pursuant to applicable labor agreements and federal and state statutes and to further require withholdings and deposits therefore.
- D. Bidder agrees to comply with all requirements of the Illinois Human Rights Act, 775 ILCS 5/1-101 et seq., including the provision dealing with sexual harassment and that if awarded the Contract will not engage in any prohibited form of discrimination in employment as defined in that Act and will require that its subcontractors agree to the same restrictions. Bidder has a written sexual harassment policy in compliance with 775 ILCS 5/2-105(A) and has completed the Sexual Harassment Policy certification, Special Attachment No. 7 in Section 00820

- E. Bidder agrees to the Equal Employment Opportunity Clause by completing the form in Special Attachment No. 8, Section 00820. The CONTRACTOR shall maintain, and require that its subcontractors maintain, policies of equal employment opportunity which shall prohibit discrimination against any employee or applicant for employment on the basis of race, religion, color, sex, national origin, ancestry, citizenship status, age, marital status, physical or mental disability unrelated to the individual's ability to perform the essential functions of the job, association with a person with a disability, or unfavorable discharge from military service. Contractors and all subcontractors shall comply with all requirements of the Act and of the Rules of the Illinois Department of Human Rights with regard to posting information on employees' rights under the Act. Contractors and all subcontractors shall place appropriate statements identifying their companies as equal opportunity employers in all advertisements for workers to be employed in work to be performed.
- F. Bidder participates in apprenticeship and training programs approved and registered with the United States Department of Labor Bureau of Apprenticeship Training and has completed the Apprenticeship and Training Program Certification, Special Attachment No. 9 in Section 00820.
- G. The bidder agrees to indemnify and hold the OWNER (Village of Orland Park), its trustees, officers, agents and employees harmless from all liability, claims, liens, losses, or causes of action for property damage, personal injury or death, or other damages, judgments, costs, damages and expenses of any kind, including costs and reasonable attorneys' fees, which may in any way be suffered by the OWNER or any of its trustees, officers, agents and employees, or which may accrue against or be charged to or recovered from the OWNER or its trustees, officers, agents and employees which may arise or which may be alleged to have arisen out of or in connection with the work covered by the Agreement. The CONTRACTOR shall defend all such claims in the name of the OWNER and shall pay for all reasonable attorney's fees and expenses of the OWNER incurred as a result thereof.

5.01 Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

6.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

For replacement of two high service pumps and related equipment, complete as shown, and specified, the total lump sum price of _____

Four Hundred Sixteen Thousand Nine Hundred Dollars

_____ dollars and _____ No _____ cents
(Use Words)
(\$ 416,900.00).
(Use Figures)

Bidder to provide the following information for informational purposes only:

The total lump sum price includes, for the programming of the Pump SCADA system as specified in Section 01110, the lump sum of _____

Five Thousand Seven Hundred Eighty Dollars

_____ dollars and _____ No _____ cents
(Use Words)
(\$ 5,780.00)
(Use Figures)

- 7.01 Bidder agrees that the Work will be ready for Final Acceptance in accordance with paragraph 14.07.B of the General and Supplementary Conditions within the number of calendar days indicated in the Agreement.
- 7.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified above, which shall be stated in the agreement.
- 8.01 The terms used in this Bid which are defined in the General and Supplementary Conditions or Instructions to Bidders will have the meanings indicated in the General and Supplementary Conditions or Instructions to Bidders.

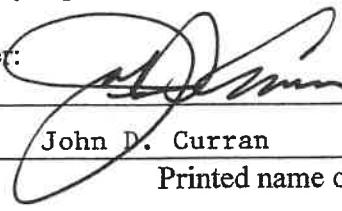
Accompanying this Bid is a certified check, a bank cashier's check
or a Bid Bond on the Continental Casualty Company

(Name of Bank or Surety)
of Chicago, Illinois
(City and State)
for the sum of 10% of Total Bid Amount
Dollars (\$),

which check shall become the property of the Village of Orland Park, or which bond shall become forthwith due and payable to the Village of Orland Park, if this Bid shall be accepted by the Village of Orland Park, and the undersigned bidder shall fail to execute a contract with and to furnish the required Performance and Payment Bonds and insurance to the Village of Orland Park within ten business days after the date of a written notice by the Village of Orland Park to the undersigned bidder so to do.

IN WITNESS WHEREOF, this Bid is hereby signed and sealed as of the date indicated.

Date: August 29, 2007

Bidder: 
By: John D. Curran
Printed name of signer

President

Title of signer

Where Bidder is a Corporation, add:

(SEAL)

ATTEST: 

Secretary

Stephen D. Curran

Where Bidder is a Joint Venture, each member of the Joint Venture must sign the Bid.

The bid must be sworn to by the person signing the bid in one of the following forms:

(Form of affidavit where Bidder is an individual)

, being duly sworn, deposes and says: That I am the person described in and who executed the foregoing Bid and that the several matters therein stated are in all respects true.

(Signature)

Subscribed and sworn to before me this _____
day of _____, 20____.

Notary Public County

(SEAL) My Commission expires:

(Form of affidavit where Bidder is a firm)

, being duly sworn,

deposes and says: That I am a member of _____

the firm described in and which executed the foregoing Bid; that I duly subscribed the name of the firm thereunto on behalf of the firm; and that the several matters therein stated are in all respects true.

(Signature)

Subscribed and sworn to before me this _____
day of _____, 20____.

Notary Public _____ County _____

(SEAL) My Commission expires:

(Form of affidavit where Bidder is a corporation)

STATE OF Illinois)
) SS:
COUNTY OF Cook)

John D. Curran and Stephen D. Curran
being duly sworn, depose and say: That we reside in the Cities of

Flossmoor, Illinois and

Munster, Indiana, respectively;

that we are the **President** _____ and

Secretary/Treasurer _____, respectively;

of **Mecon Industries, Inc.**

the corporation described in and which executed the foregoing instrument; that we know the seal of the corporation; that the seal affixed to this instrument is such corporate seal and was so affixed by order of the Board of Directors of the corporation; that we signed our names thereto by like order; and that we have knowledge of the several matters therein stated and they are in all respects true.


(Signature)
John D. Curran


(Signature)
Stephen D. Curran

Subscribed and sworn to before me this 29th
day of August, 2007.

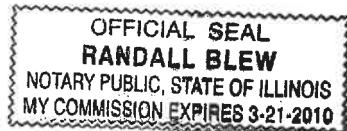
Randall B. Lee

Notary Public Cook County

(SEAL)

My Commission expires:

3/21/10



(Form of Affidavit where Bidder is a Joint Venture)

Name: _____

Firm: _____

Name: _____

Firm: _____

Name: _____

Firm: _____

and

Name: _____

Firm: _____

being duly sworn, depose and say: That we are members of the joint venture described in and which executed the foregoing Bid; that we duly subscribed the names of the firms forming the joint venture thereunto on behalf of each firm and that the several matters therein stated are in all respects true.

(Signature)

(Signature)

(Signature)

(Signature)

Subscribed and sworn to before me this _____
day of _____, 20____.

Notary Public _____ County

(SEAL) My Commission expires:

(NO TEXT FOR THIS PAGE)

BID BOND

Any singular reference to Bidder, Surety, Owner, or other party shall be considered plural where applicable.

BIDDER (Name and Address):

Meccon Industries, Inc.
2703 Bernice Road
Lansing, IL 60438

SURETY (Name and Address of Principal Place of Business):

Continental Casualty Company
CNA Center
Chicago, IL 60685

OWNER (Name and Address):

Village of Orland Park
14700 Ravinia Avenue
Orland Park, IL 60462

BID

Bid Due Date: August 29, 2007

Project (Brief Description Including Location):

High Service Pumps Upgrade

BOND

Bond Number: Bid Bond

Date (Not later than Bid due date): August 29, 2007

Penal sum Ten Percent of Amount Bid

(Words)

10% of A/B

(Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER

Meccon Industries, Inc.

Bidder's Name and Corporate Seal

By:

Signature and Title

John D. Curran, President

Attest:

Signature and Title

Stephen D. Curran, Secretary/
Treasurer

(Seal)

(Seal)

Continental Casualty Company

Surety's Name and Corporate Seal

By:

Signature and Title Sharon A. Sonderman, Attorney-in-Fact
(Attach Power of Attorney)

Attest: Jurat Attached

Signature and Title

Note: Above addresses are to be used for giving required notice.

PENAL SUM FORM

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Surety's liability.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by Owner, or
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

SURETY ACKNOWLEDGMENT (ATTY-IN-FACT)

State of Illinois } ss:
County of DuPage

On this 29th day of August in the year two thousand seven, before me, Joan B. Ward, a Notary Public in and for said County and State, residing therein, duly commissioned and sworn, personally appeared Sharon A. Sonderman, known to me to be the duly authorized Attorney-in-fact of the Continental Casualty Company and the same person whose name is subscribed to the within instrument as the Attorney-in-fact of said Company, and the said Sharon A. Sonderman duly acknowledged to me that she subscribed the name of the Continental Casualty Company thereto as Surety and her own name as Attorney-in-fact.
IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this Certificate first above written.

My Commission Expires

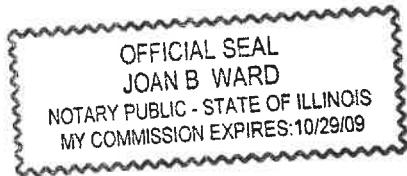
10/29/2009

Notary Public in and for

Joan B. Ward

County, State of

DuPage, Illinois



POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That Continental Casualty Company, an Illinois corporation, National Fire Insurance Company of Hartford, an Illinois corporation, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania corporation (herein called "the CNA Companies"), are duly organized and existing corporations having their principal offices in the City of Chicago, and State of Illinois, and that they do by virtue of the signatures and seals herein affixed hereby make, constitute and appoint

Theresa M Adams, Mark R Malley, Sharon Sinople, Hal Miller Jr, Karen E Socha, Sharon A Sonderman, William T Krumm, Randall Moon, Jon A Schroeder, Arlene M Filipski, Individually

of Itasca, IL, their true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on their behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

and to bind them thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of their corporations and all the acts of said Attorney, pursuant to the authority hereby given is hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law and Resolutions, printed on the reverse hereof, duly adopted, as indicated, by the Boards of Directors of the corporations.

In Witness Whereof, the CNA Companies have caused these presents to be signed by their Senior Vice President and their corporate seals to be hereto affixed on this 6th day of December, 2006.



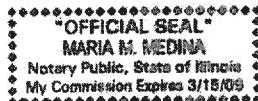
Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

Thomas P. Stillman

Senior Vice President

State of Illinois, County of Cook, ss:

On this 6th day of December, 2006, before me personally came Thomas P. Stillman to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Chicago, State of Illinois; that he is a Senior Vice President of Continental Casualty Company, an Illinois corporation, National Fire Insurance Company of Hartford, an Illinois corporation, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania corporation described in and which executed the above instrument; that he knows the seals of said corporations; that the seals affixed to the said instrument are such corporate seals; that they were so affixed pursuant to authority given by the Boards of Directors of said corporations and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said corporations.



My Commission Expires March 15, 2009

Maria M. Medina

Notary Public

CERTIFICATE

I, Mary A. Ribikawskis, Assistant Secretary of Continental Casualty Company, an Illinois corporation, National Fire Insurance Company of Hartford, an Illinois corporation, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania corporation do hereby certify that the Power of Attorney herein above set forth is still in force, and further certify that the By-Law and Resolution of the Board of Directors of the corporations printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said corporations this 29th day of August, 2007.



Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

Mary A. Ribikawskis

Assistant Secretary

Authorizing By-Laws and Resolutions

ADOPTED BY THE BOARD OF DIRECTORS OF CONTINENTAL CASUALTY COMPANY:

This Power of Attorney is made and executed pursuant to and by authority of the following By-Law duly adopted by the Board of Directors of the Company.

“Article IX—Execution of Documents

Section 3. Appointment of Attorney-in-fact. The Chairman of the Board of Directors, the President or any Executive, Senior or Group Vice President may, from time to time, appoint by written certificates attorneys-in-fact to act in behalf of the Company in the execution of policies of insurance, bonds, undertakings and other obligatory instruments of like nature. Such attorneys-in-fact, subject to the limitations set forth in their respective certificates of authority, shall have full power to bind the Company by their signature and execution of any such instruments and to attach the seal of the Company thereto. The Chairman of the Board of Directors, the President or any Executive, Senior or Group Vice President or the Board of Directors, may, at any time, revoke all power and authority previously given to any attorney-in-fact.”

This Power of Attorney is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of the Company at a meeting duly called and held on the 17th day of February, 1993.

“Resolved, that the signature of the President or any Executive, Senior or Group Vice President and the seal of the Company may be affixed by facsimile on any power of attorney granted pursuant to Section 3 of Article IX of the By-Laws, and the signature of the Secretary or an Assistant Secretary and the seal of the Company may be affixed by facsimile to any certificate of any such power and any power or certificate bearing such facsimile signature and seal shall be valid and binding on the Company. Any such power so executed and sealed and certified by certificate so executed and sealed shall, with respect to any bond or undertaking to which it is attached, continue to be valid and binding on the Company.”

ADOPTED BY THE BOARD OF DIRECTORS OF AMERICAN CASUALTY COMPANY OF READING, PENNSYLVANIA:

This Power of Attorney is made and executed pursuant to and by authority of the following By-Law duly adopted by the Board of Directors of the Company.

“Article VI—Execution of Obligations and Appointment of Attorney-In-Fact

Section 2. Appointment of Attorney-in-fact. The Chairman of the Board of Directors, the President or any Executive, Senior or Group Vice President may, from time to time, appoint by written certificates attorneys-in-fact to act in behalf of the Company in the execution of policies of insurance, bonds, undertakings and other obligatory instruments of like nature. Such attorneys-in-fact, subject to the limitations set forth in their respective certificates of authority, shall have full power to bind the Company by their signature and execution of any such instruments and to attach the seal of the Company thereto. The President or any Executive, Senior or Group Vice President may at any time revoke all power and authority previously given to any attorney-in-fact.”

This Power of Attorney is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of the Company at a meeting duly called and held on the 17th day of February, 1993.

“Resolved, that the signature of the President or any Executive, Senior or Group Vice President and the seal of the Company may be affixed by facsimile on any power of attorney granted pursuant to Section 2 of Article VI of the By-Laws, and the signature of the Secretary or an Assistant Secretary and the seal of the Company may be affixed by facsimile to any certificate of any such power and any power or certificate bearing such facsimile signature and seal shall be valid and binding on the Company. Any such power so executed and sealed and certified by certificate so executed and sealed shall, with respect to any bond or undertaking to which it is attached, continue to be valid and binding on the Company.”

ADOPTED BY THE BOARD OF DIRECTORS OF NATIONAL FIRE INSURANCE COMPANY OF HARTFORD:

This Power of Attorney is made and executed pursuant to and by authority of the following By-Law duly adopted by the Board of Directors of the Company.

“Article VII—Execution of Documents

Section 3. Appointment of Attorney-in-Fact. The Chairman of the Board of Directors, the President of any Executive or Senior Vice President may, from time to time, appoint by written certificates attorneys-in-fact to act in behalf of the Company in the execution of policies of insurance, bonds, undertakings and other obligatory instruments of like nature. Such attorneys-in-fact, subject to the limitations set forth in their respective certificates of authority shall have full power to bind the Company by their signature and execution of any such instruments and to attach the seal of the Company thereto. The Chairman of the Board of Directors, the President or any Executive, Senior Vice President or the Board of Directors, may, at any time, revoke all power and authority previously given to any attorney-in-fact.”

This Power of Attorney is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of the Company at a meeting duly called and held on the 17th day of February, 1993.

“RESOLVED: That the signature of the President, an Executive Vice President or any Senior or Group Vice President and the seal of the Corporation may be affixed by facsimile on any power of attorney granted pursuant to the Resolution adopted by this Board of Directors on February 17, 1993 and the signature of a Secretary or an Assistant Secretary and the seal of the Corporation may be affixed by facsimile to any certificate of any such power, and any power or certificate bearing such facsimile signature and seal shall be valid and binding on the Corporation. Any such power so executed and sealed and certified by certificate so executed and sealed, shall with respect to any bond or undertaking to which it is attached, continue to be valid and binding on the Corporation.”

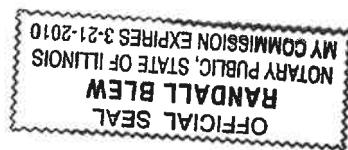
STATE OF Illinois
COUNTY OF Cook ss:

On this 29th day of August, 2007, before me personally appeared John D. Curran, to me known, who, being by me duly sworn, did depose and say: that he resides at 2703 Bernice Rd., Lansing, IL 60438, that he is the President of Meccon Industries, Inc., the corporation described in and which executed the annexed instrument; that he knows the corporate seal of said corporation, that the seal affixed to said instrument in such corporate seal; that it was so affixed by order of the Board of Directors of said corporation; that he signed his name thereto by like order, and that the liabilities of said corporation do not exceed its assets as ascertained in the manner provided by law.

Notary Public in and for the above County and State

Randall Blew

My commission expires



SECTION 00520
AGREEMENT FOR
CONSTRUCTION SERVICES

THIS AGREEMENT is dated as of the 26th day of September in the year 2007 by and between the Village of Orland Park (hereinafter called OWNER) and Meccon Industries, Inc. (hereinafter call CONTRACTOR).

WITNESSETH

In consideration of the promises and covenants made herein by the OWNER and the CONTRACTOR (hereinafter referred to collectively as the "PARTIES,") the PARTIES agree as follows:

Article 1. WORK

1.01 CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

The replacement of two high service pumps at the Main Pumping Station, located at 8800 Thistlewood Lane, Orland Park, Illinois, including associated electrical equipment, miscellaneous and appurtenant work for a complete and ready-to-use installation.

Article 2. THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

Replacement of two high service pumps at the Village of Orland Park Main Pumping Station.

Article 3. ENGINEER

3.01 The Project has been designed by Greeley and Hansen who is hereinafter called ENGINEER and who is to act as OWNER's representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

Article 4. CONTRACT TIMES

4.01 Time of the Essence

A. All time limits for Milestones, if any, and Final Acceptance are of the essence of the Contract.

4.02 Days to Achieve Final Acceptance

A. The Work will be completed and ready for Final Acceptance in accordance with paragraph 14.06B of the General and Supplementary Conditions within 270 days after the date when the Contract Time commences to run.

4.03 Liquidated Damages

A. CONTRACTOR and OWNER recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 4.02 above plus any extensions thereof allowed in accordance with Article 12 of the General and Supplementary Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER two hundred and fifty and no/100 dollars (\$250.00) for each day that expires after the time specified in paragraph 4.02 for Final Acceptance until the Work is finally complete.

Article 5. CONTRACT PRICE

5.01 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount in current funds equal a Lump Sum of:

Article 6. PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

A. CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General and Supplementary Conditions. Applications for Payment will be processed by ENGINEER as provided in the General and Supplementary Conditions.

6.02 Progress Payments: Retainage

A. OWNER shall make progress payments based on the following schedule:

Work Item	Percent of Contract Amount to be Paid (without Retainage)
1. Approval of high service pump equipment shop drawings including piping, valves, mounting base, and electrical equipment	5
2. Delivery of all principal equipment to the pumping station ready for installation.	35
3. Installation of first high service pump including successful start-up and operation for one week.	25
4. Installation of second high service pump including successful start-up and operation for one week.	25
5. Retainage	10

B. Payment terms shall be pursuant to the provisions of the Local Government Prompt Payment Act (50 ILCS 505/1 *et seq.*).

C. Refer to Section 820 Special Attachment 10 for EJCDC form No. 1910-8-E (1996), Application for Payment to be used for payment requests.

D. Ten percent (10%) of the total amount of the contract price will be retained until final completion and acceptance of the work as recommended by the ENGINEER.

6.03 Final Payment

A. Upon final completion and acceptance of the Work in accordance with paragraph 14.07 of the General and Supplementary Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.07.

Article 7. CONTRACTOR'S REPRESENTATIONS

7.01 In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

- A. CONTRACTOR has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
- B. CONTRACTOR has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.
- C. CONTRACTOR is familiar with and is satisfied as to all federal, state and local Laws, Ordinances, Statutes, Rules and Regulations that may affect cost, progress, and performance of the Work, including but not limited to all applicable provisions of the Illinois Human Rights Act (775 ILCS 5/1-101 et seq.) and the Illinois Prevailing Wage Act (820 ILCS 130/0.01 et seq.)
- D. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.
- E. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

Article 8. CONTRACT DOCUMENTS

8.01 Contents

- A. The Contract Documents consist of the following:
 - 1. Notice to Bidders
 - 2. Instructions to Bidders
 - 3. Bid Form and Special Attachments (as submitted by the CONTRACTOR as it is responsive to the OWNER's bid requirements)
 - 4. Documentation submitted by CONTRACTOR prior to Notice of Award
 - 5. Notice of Award
 - 6. This Agreement
 - 7. Exhibits to this Agreement
 - 8. Performance and Payment Bonds
 - 9. Notice to Proceed

10. General and Supplementary Conditions
11. Specifications bearing the title Village of Orland Park High Service Pumps Upgrade.
12. Set of Contract Drawings bearing the title Village of Orland Park High Service Pumps Upgrade.
13. Addenda (no addenda issued)
14. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Written Amendments
 - b. Work Change Directives and
 - c. Change order(s).
15. Certificates of Insurance

B. The documents listed in paragraphs 8.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 8.

D. The Contract Documents may only be amended, modified or supplemented as provided in paragraph 3.05 of the General and Supplementary Conditions.

Article 9. MISCELLANEOUS

9.01 Terms

A. Terms used in this Agreement will have the meanings indicated in the General and Supplementary Conditions.

9.02 Assignment of Contract

A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

9.03 Successors and Assigns

A. OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

9.04 Severability

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provisions or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

9.05 Law and Venue

A. The laws of the State of Illinois shall govern this Contract and venue for legal disputes shall be Cook County, Illinois

9.06 Indemnification

A. The CONTRACTOR shall indemnify and hold the OWNER, its trustees, officers, agents and employees harmless from all liability, claims, liens, losses, or causes of action for property damage, personal injury or death, or other damages, judgments, costs, damages and expenses of any kind, including costs and reasonable attorneys' fees, which may in any way be suffered by the OWNER or any of its trustees, officers, agents and employees, or which may accrue against or be charged to or recovered from the OWNER or its trustees, officers, agents and employees which may arise or which may be alleged to have arisen out of or in connection with the work covered by this Contract. The CONTRACTOR shall defend all such claims in the name of the OWNER and shall pay for all reasonable attorney's fees and expenses of the OWNER incurred as a result thereof.

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

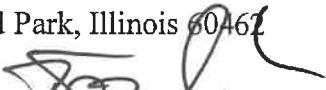
This Agreement shall become effective on the date last shown herein and upon execution by duly authorized agents of the parties.

OWNER:

VILLAGE OF ORLAND PARK

14700 S. Ravinia Ave.

Orland Park, Illinois 60462

By: 

Name: R. J. Zeder

Title: Village Manager

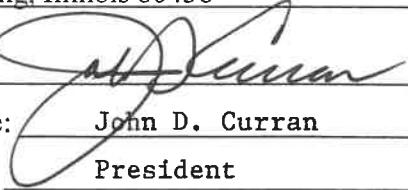
Date: 9-25-07

CONTRACTOR:

Meccon Industries, Inc.

2703 Bernice Road

Lansing, Illinois 60438

By: 

Name: John D. Curran

Title: President

Date: September 25, 2007

Address for Giving Notices:

Denise Domalewski
Contract Administrator
Village of Orland Park
14700 S. Ravinia Ave.
Orland Park, Illinois 60462
Phone: (708) 403-6173
Facsimile: (708) 403-9212
e-mail: ddomalewski@orland-park.il.us

Address for Giving Notices:

License No. _____

(Where applicable)

Designated Representative:

John J. Ingram
Utility Superintendent
Village of Orland Park
15655 S. Ravinia Ave.
Orland Park, Illinois 60462
Phone: (708) 403-6350
Facsimile: (708) 403-8798

Designated Representative:

Name: _____

Title: _____

Address: _____

Phone: _____

Facsimile: _____

(NO TEXT FOR THIS PAGE)

VOPHSP

00520-8

PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

_____ (Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

Attest:

Signature and Title

(Space is provided below for signatures of additional parties, if required.)

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

_____ (Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

Attest:

Signature and Title:

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.
2. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 3.1.
3. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
 - 3.1. Owner has notified Contractor and Surety, at the addresses described in Paragraph 10 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
 - 3.2. Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 3.1; and
 - 3.3. Owner has agreed to pay the Balance of the Contract Price to:
 1. Surety in accordance with the terms of the Contract;
 2. Another contractor selected pursuant to Paragraph 4.3 to perform the Contract.
4. When Owner has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety's expense take one of the following actions:
 - 4.1. Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
 - 4.2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
 - 4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and Contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
 - 4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:
 1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
 2. Deny liability in whole or in part and notify Owner citing reasons therefor.
5. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 4.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
6. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To a limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:
 - 6.1. The responsibilities of Contractor for correction of defective Work and completion of the Contract;
 - 6.2. Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions or failure to act of Surety under Paragraph 4; and
 - 6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.
7. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.
8. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.
9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
10. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.
11. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
12. Definitions.
 - 12.1. Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
 - 12.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
 - 12.3. Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
 - 12.4. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

FOR INFORMATION ONLY – Name, Address and Telephone
 Surety Agency or Broker
 Owner's Representative (engineer or other party)

PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Company: _____ (Seal)

Name and Title: _____ (Seal)

Surety's Name and Corporate Seal

By: _____

Signature and Title

(Attach Power of Attorney)

Attest: _____

Signature and Title

CONTRACTOR AS PRINCIPAL

SURETY

Company: _____ (Seal)

Name and Title: _____ (Seal)

Surety's Name and Corporate Seal

By: _____

Signature and Title

(Attach Power of Attorney)

Attest: _____

Signature and Title

EJCDC No. C-615 (2002 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, the American Institute of Architects, the American Subcontractors Association, and the Associated Specialty Contractors.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
 - 2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2. Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
 - 4.1. Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2. Claimants who do not have a direct contract with Contractor:
 1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
 2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
 3. Not having been paid within the above 30 days, have sent a written notice to Surety and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
 - 6.1. Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
 - 6.2. Pay or arrange for payment of any undisputed amounts.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.
11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
15. DEFINITIONS
 - 15.1. Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
 - 15.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
 - 15.3. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

FOR INFORMATION ONLY – Name, Address and Telephone
Surety Agency or Broker:
Owner's Representative (engineer or other party):

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

STANDARD GENERAL and SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AMERICAN CONSULTING ENGINEERS COUNCIL

AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by

The Associated General Contractors of America

Construction Specifications Institute

These General Conditions have been prepared for use with the Owner-Contractor Agreements (No. 1910-8-A-1 or 1910-8-A-2) (1996 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC User's Guide (No. 1910-50). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. 1910-17) (1996 Edition).

EJCDC No. 1910-8 (1996 Edition) - **MODIFIED**

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National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314

American Consulting Engineers Council
1015 15th Street N.W., Washington, DC 20005

American Society of Civil Engineers
345 East 47th Street, New York, NY 10017

**NOTICE: SUPPLEMENTARY CONDITIONS HAVE BEEN INTEGRATED INTO THE TEXT
OF THE STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT**

Supplementary Conditions are shown in BOLD PRINT where additions are made to the Standard General Conditions and by DELETION USING STRIKEOUT where items in the Standard General Conditions have been removed by deletion.

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. 1910-8, 1996 edition of EJCDC) and other provisions of the Contract Documents as indicated below.

All provisions which are not so amended or supplemented remain in full force and effect.

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

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Contract Documents and printed with initial or all capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

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

2. *Agreement*--The written instrument which is evidence of the agreement between OWNER and CONTRACTOR concerning the Work.

3. *Application for Payment*--The form acceptable to ENGINEER which is to be used by CONTRACTOR during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

7. *Bidding Requirements*--The Advertisement or ~~Invitation to Bid~~ **Notice to Bidders**, Instructions to Bidders, Bid security form, if any, and the Bid form with any supplements.

8. *Bonds*--Performance and payment bonds and other instruments of security.

9. *Change Order*--A document recommended by ENGINEER 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, issued on or after the Effective Date of the Agreement.

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. *Contract*--The entire and integrated written agreement between the OWNER and CONTRACTOR concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*--The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders, and ENGINEER's written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by OWNER to CONTRACTOR are not Contract Documents.

13. *Contract Price*--The moneys payable by OWNER to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Substantial Completion; and (ii) complete the Work so that it is ready for final payment as evidenced by ENGINEER's written recommendation of final payment.

15. *CONTRACTOR*--The individual or entity with whom OWNER has entered into the Agreement.

16. *Cost of the Work*--See paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by ENGINEER which graphically shows the scope, extent, and character of the Work to be performed by CONTRACTOR. Shop Drawings and other CONTRACTOR submittals are not Drawings as so defined.

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

19. *ENGINEER*--The individual or entity named as such in the Agreement.

20. *ENGINEER's Consultant*--An individual or entity having a contract with ENGINEER to furnish services as ENGINEER's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions. **ENGINEER's consultants are Klein and Hoffman, Inc.**

21. *Field Order*--A written order issued by ENGINEER which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

22. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

23. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

24. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

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

26. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

27. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

28. *Notice of Award*--The written notice by OWNER to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, OWNER will sign and deliver the Agreement.

29. *Notice to Proceed*--A written notice given 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 under the Contract Documents.

30. *OWNER*--The individual, entity, public body, or authority with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be performed.

31. *Partial Utilization*--Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

32. *PCBs*--Polychlorinated biphenyls.

33. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

34. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part as may be indicated elsewhere in the Contract Documents.

35. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

36. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

37. *Resident Project Representative*--The authorized representative of ENGINEER who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.

40. *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 for access thereto, and such other lands furnished by OWNER which are designated for the use of CONTRACTOR.

41. *Specifications*--That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

42. *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 at the Site.

43. *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 thereof.

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

45. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, 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 any Subcontractor.

46. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

47. *Unit Price Work*--Work to be paid for on the basis of unit prices.

48. *Work*--The entire completed 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, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.~~

Work is the result of performing or furnishing labor and the result of furnishing and incorporating materials and equipment into the construction, and the result of performing or furnishing services, and documentation, all as required by the Contract Documents.

49. *Work Change Directive*--A written statement to CONTRACTOR issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by ENGINEER ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

50. *Written Amendment*--A written statement modifying the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

51. **"Additional Insureds", except where otherwise expressly defined, shall mean:**
Village of Orland Park

**Greeley and Hansen LLC
Klein and Hoffman, Inc.**

1.02 Terminology

A. Intent of Certain Terms or Adjectives

1. Whenever in the Contract Documents the terms "as allowed," "as approved," or terms of like effect or import are used, or 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 action or determination will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.10 or any other provision of the Contract Documents.

B. Day

1. The word "day" shall constitute a calendar day of 24 hours measured from midnight to the next midnight.

2. "Workday" or "workdays", except where otherwise expressly defined, shall mean a day or days of twenty-four hours each, excluding Saturdays, Sundays and federal or State legal holidays.

C. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or 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 14.04 or 14.05).

D. Furnish, Install, Perform, Provide

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean 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, shall mean 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, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of CONTRACTOR, "provide" is implied.

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

ARTICLE 2 - PRELIMINARY MATTERS

2.01 Delivery of Bonds

A. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish.

2.02 Copies of Documents

A. OWNER shall furnish to CONTRACTOR up to ten **five(5)** copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction.

2.03 Commencement of Contract Times; Notice to Proceed

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

A. The Notice to Proceed shall designate a date for commencement of Contract Times.

2.04 Starting the Work

A. CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 Before Starting Construction

A. *CONTRACTOR's Review of Contract Documents:* Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error, ambiguity, or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless CONTRACTOR knew or reasonably should have known thereof.

B. *Preliminary Schedules:* Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for its timely review:

1. a preliminary progress schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
2. a preliminary schedule of Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; and
3. a preliminary 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.

4. a listing of proposed subcontractors and major material and equipment suppliers.

C. *Evidence of Insurance:* Before any Work at the Site is started ~~execution of the Agreement~~, CONTRACTOR and OWNER shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which CONTRACTOR and OWNER respectively are required to purchase and maintain in accordance with Article 5.

2.06 Preconstruction Conference

A. Within 20 days after the Contract Times start to run, ~~but before any Work at the Site is started~~, a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.05.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 Initial Acceptance of Schedules

A. Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to review for acceptability to ENGINEER as provided below the schedules submitted in accordance with paragraph 2.05.B. CONTRACTOR shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to CONTRACTOR until acceptable schedules are submitted to ENGINEER.

1. The progress schedule will be acceptable to ENGINEER if it provides an orderly progression of the Work to completion within any specified Milestones and the Contract Times. Such acceptance will not impose on ENGINEER responsibility for the progress schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve CONTRACTOR from CONTRACTOR's full responsibility therefor.

2. CONTRACTOR's schedule of Shop Drawing and Sample submittals will be acceptable to

ENGINEER if it provides a workable arrangement for reviewing and processing the required submittals.

3. CONTRACTOR's schedule of values will be acceptable to ENGINEER as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

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

The Contract Documents will be governed by applicable Laws and Regulations of the place of the Project and OWNER, and those of any other Unit of Local Government with jurisdiction, except where Federal Laws or Regulations have precedence.

A.1 Each and every provision of law and clause required by law to be inserted in these Contract Documents shall be deemed to be inserted herein, and they shall be read and enforced as though it were included herein, and if through mistake or otherwise, any such provision is not inserted, or if not correctly inserted, then upon the application of either party, the Contract Documents shall forthwith be physically amended to make such insertion.

A.2 In resolving conflicts, the Contract Documents shall be given preference as may be reasonably inferred by ENGINEER as being consistent with their overall intent and required to produce the intended result. In resolving conflicts, within the Contract Documents existing on the Effective Date of the Agreement, and as long as not in conflict with this fundamental priority order, ENGINEER will give preference to the Contract Documents in the following order: Supplementary Conditions, General Conditions, Specifications and Contract Drawings, CONTRACTOR's Bid, Performance and other Bonds including Work History Statement, and Contract Agreement including CONTRACTOR's Certification, and Notice to Proceed all as supplemented below.

A.3 If the issue of priority involves Divisions 2 through 16 of the Specifications and the Drawings, figured dimensions shall govern over scaled dimensions, but Work not dimensioned shall be as directed by ENGINEER, and Work not particularly shown, identified, sized, or located shall be the same as similar Work that is shown or specified. Detail Drawings shall govern over general Drawings, larger scale Drawings take precedence over smaller scale Drawings. Whenever notes, specifications, dimensions, details or schedules in the Specifications, or in the Drawings, or between the Specifications and Drawings, or between Change Order or Work Change Directive Drawings and Contract Drawings, or between the provisions of the Contract Documents and those of any referenced standard specifications, manual, or code of any technical society, organization or association, conflict, the higher cost requirement shall be furnished by CONTRACTOR, unless otherwise directed by ENGINEER.

A.4 Given the intent of the Contract Documents, CONTRACTOR accepts the conditions that compliance with the priority specified in this Section shall not justify any changes in the Work, or any increase in Contract Price or Contract Times.

B. 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.

~~Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to OWNER.~~

In addition to Work expressly called for in the Drawings and Specifications, any other services, labor, transportation, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result shall be provided at no increase in Contract Price or extension in Contract Times, and without requiring any changes in the Work, whether or not specifically called for.

C. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in Article 9.

3.02 Reference Standards

A. Standards, Specifications, Codes, Laws, and Regulations

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

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of OWNER, CONTRACTOR, or ENGINEER, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall any such provision or instruction be effective to assign to OWNER, ENGINEER, or any of ENGINEER's Consultants, agents, or employees any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 Reporting and Resolving Discrepancies

A. Reporting Discrepancies

1. If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, CONTRACTOR shall report it to ENGINEER in writing at once. CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as required by paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in paragraph 3.04; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity, or discrepancy unless CONTRACTOR knew or reasonably should have known thereof.

B. Resolving Discrepancies

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

- a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or
- b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 Amending and Supplementing Contract Documents

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways: (i) a Written Amendment; (ii) a Change Order; or (iii) a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways: (i) a Field Order; (ii) ENGINEER's approval of a Shop Drawing or Sample; or (iii) ENGINEER's written interpretation or clarification.

3.05 Reuse of Documents

A. CONTRACTOR and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with OWNER: (i) 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 ENGINEER's Consultant, including electronic media editions; and (ii) shall not reuse any of 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 adaption by ENGINEER. This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude

CONTRACTOR from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

4.01 Availability of Lands

A. OWNER shall furnish the Site. OWNER shall notify CONTRACTOR 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. OWNER will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If CONTRACTOR and OWNER are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in OWNER's furnishing the Site, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

B. Upon reasonable written request, OWNER shall furnish CONTRACTOR with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and OWNER's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment. Any additional lands, rights-of-way and easements not furnished that CONTRACTOR deems necessary shall be obtained by CONTRACTOR at no increase in Contract Price or Contract Times. CONTRACTOR shall obtain (and submit to OWNER) permits and written approvals from the U.S. Government, or the appropriate Unit of Local Government or property owner(s) for the use of lands and access so obtained and assume any resultant cost or delay.

4.02 Subsurface and Physical Conditions

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Contract Documents.

3. In the preparation of Drawings and Specifications, ENGINEER has relied upon the following drawings related to existing structures and equipment which are at or contiguous to the site of work. Such documents are not part of the Contract Documents.

-TITLES OF DOCUMENTS-

Pumping Station and Reservoir Contract Documents – dated September 1984

Addition of New Primary Pumps Contract Documents – dated August 1986

Copies of these reports and drawings that are not included with Bidding Documents may be examined at office of the OWNER, Village of Orland Park, 14700 Ravinia Avenue, Orland Park, Illinois, 60462, during regular business hours. These reports and drawings are not part of the Contract Documents, but the technical data contained therein upon which CONTRACTOR is entitled to rely as provided in paragraph 4.02B. of the General Conditions and as identified and established above are incorporated therein by reference. CONTRACTOR is not entitled to rely upon other information and data utilized by ENGINEER and ENGINEER's Consultants in the preparation of Drawings and Specifications.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER, or any of ENGINEER's Consultants 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; or

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.

4.03 Differing Subsurface or Physical Conditions

A. Notice: If CONTRACTOR believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which CONTRACTOR is entitled to rely as provided in paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

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 as required by paragraph 6.16.A), notify OWNER and ENGINEER in writing about such condition. CONTRACTOR shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. ENGINEER's Review: After receipt of written notice as required by paragraph 4.03.A, ENGINEER will promptly review the pertinent condition, determine the necessity of OWNER's obtaining additional exploration or tests with respect thereto, and advise OWNER in writing (with a copy to CONTRACTOR) of ENGINEER's findings and conclusions.

C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in CONTRACTOR's cost of, or time required for, perfor-

mance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in paragraph 4.03.A; and

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 paragraphs 9.08 and 11.03.

2. CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. CONTRACTOR knew of the existence of such conditions at the time CONTRACTOR made a final commitment to OWNER in respect of Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTOR's making such final commitment; or

c. CONTRACTOR failed to give the written notice within the time and as required by paragraph 4.03.A.

3. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in paragraph 10.05. However, OWNER, ENGINEER, and ENGINEER's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses, or 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) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.03 The CONTRACTOR, by execution of the Contract Agreement, represents that it has visited and has had full opportunity to examine the site or sites upon which the Work is to be performed and to examine the Contract Drawings and Specifications and other Contract Documents; that it has satisfied itself as to the

requirements of the Work and of all conditions, including subsurface conditions, conditions of existing public and private roads and of clearances, restrictions, bridge load limits, utilities, and other limitations affecting transportation, ingress and egress at the Work site or sites, that may affect performing the Work; that its entry into the Contract has not been induced either wholly or in part by any promises, representations or statements on behalf of the OWNER or ENGINEER, or their agents or representatives other than those set forth in the Contract Documents; and that any information or data pertaining to local conditions that are distributed with the Contract Documents or made available to CONTRACTOR were included or made available for the convenience of the CONTRACTOR and not as a representation or warranty of any fact, condition or information. It is expressly understood that neither the OWNER nor the ENGINEER will be responsible for any interpretation or conclusion drawn therefrom by the CONTRACTOR and that the determination of the character of subsurface conditions and materials shall be the sole responsibility of the CONTRACTOR. The CONTRACTOR further represents that the Contract Price, and all component elements thereof, set forth in the Contract Agreement has been determined with due regard to all such conditions and requirements affecting the Work, including the Contract Times specified as well as the difficulties, hindrances and delays incident to Work of the nature contemplated hereby, and with due allowance for contingencies and unanticipated or unpredictable conditions and occurrences. CONTRACTOR agrees that no claim for any increase in Contract Price or claim for extension of time for completion of the Work shall be made for subsurface and physical conditions except as specifically provided in the Contract.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities, including OWNER, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and
2. the cost of all of the following will be included in the Contract Price, and CONTRACTOR shall have full responsibility for:
 - a. reviewing and checking all such information and data,
 - b. locating all Underground Facilities shown or indicated in the Contract Documents,
 - c. coordination of the Work with the owners of such Underground Facilities, including OWNER, during construction, and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, 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 as required by paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility.

2. If ENGINEER concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price of Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that CONTRACTOR did not know of and could not reasonably have been expected to be aware of or to have anticipated. If OWNER and CONTRACTOR are unable to agree on

entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, OWNER or CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

4.05 Reference Points

A. 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.

4.06 Hazardous Environmental Condition at Site

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the ENGINEER in the preparation of the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER or any of ENGINEER's Consultants 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; or
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 any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. CONTRACTOR shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by CONTRACTOR, Subcontractors, Suppliers, or anyone else for whom CONTRACTOR is responsible.

D. If CONTRACTOR encounters a Hazardous Environmental Condition or if CONTRACTOR or anyone for whom CONTRACTOR is responsible creates a Hazardous Environmental Condition, CONTRACTOR shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by paragraph 6.16); and (iii) 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.

E. CONTRACTOR shall not be required to resume Work in connection with such condition or in any affected area until after OWNER has obtained any required permits related thereto and delivered to CONTRACTOR written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. 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, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by CONTRACTOR, either party may make a Claim therefor as provided in paragraph 10.05.

F. 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. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in

paragraph 10.05. OWNER may have such deleted portion of the Work performed by OWNER's own forces or others in accordance with Article 7.

~~G. To the fullest extent permitted by Laws and Regulations, OWNER shall indemnify and hold harmless CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and the officers, directors, partners, employees, agents, other 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 a Hazardous Environmental Condition; provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.E shall obligate OWNER to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.~~

~~H. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, other 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 a Hazardous Environmental Condition created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.F shall obligate CONTRACTOR to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.~~

~~I. The provisions of paragraphs 4.02, 4.03, and 4.04 are not intended to apply to a Hazardous Environmental Condition uncovered or revealed at the Site.~~

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. CONTRACTOR shall furnish performance and payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under

the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Contract Documents.

B. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

C. If the surety on any Bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.01.B, CONTRACTOR shall within 20 days thereafter substitute another Bond and surety, both of which shall comply with the requirements of paragraphs 5.01.B and 5.02.

D. The forms of the Performance and Labor and Material Payment Bonds included in the Contract Documents shall be used for this Project. Note instructions thereon as to the form applicable. Each form contemplates one corporate surety only. In case co-sureties or individual sureties will be utilized, proper forms therefor shall be obtained. Besides the stipulation of paragraph 5.01.B of the General Conditions, the surety on the Bonds shall be licensed to underwrite contracts in the state of the project location with a general rating of A, and a financial size category of Class X or better in Bests Insurance Guide, and a certificate to that effect shall be attached to the Bonds.

No changes, modifications, alterations, omissions, deletions, additions, extensions of time or forbearances on the part of either party to the other in or to the terms of this Contract, in or to the schedules, Contract Drawings and Specifications, in or to the method or manner of performance of the Work, in or to Owner-furnished facilities, equipment, material, service or sites, or in or to the mode or manner of payment therefor shall operate to release, discharge or affect the obligation of any surety or sureties under any bond and all notice of any and all of the foregoing changes, modifications, alterations, omissions, deletions, additions, extensions of time

or forbearances, and notice of any and all defaults by Contractor or of Owner's termination of Contractor shall be waived by any surety or sureties under any bond.

The bond must name the OWNER as the Obligee, which is the entity protected by the bond in the event of a loss.

If the principal is an individual, his full name and residence shall be inserted in the body thereof, and he shall sign the Bonds with his usual signature on the line opposite the scroll seal.

If the principals are partners, their individual names shall appear in the body of the Bonds, with the recital that they are partners comprising a firm, naming it, and all the members of the firm shall execute the Bonds as individuals. The signature of a witness shall appear in the appropriate places, attesting the signatures of each individual party to the Bonds. 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 Bonds, and said instrument shall be executed and attested under the corporate seal as indicated on the form. If the corporation has no seal, the face shall be stated, in which case a scroll or adhesive seal shall appear following the corporate name. This also applies to execution by surety.

The date of the bonds must not be prior to the date of the Contract for which given.

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

5.02 Licensed Sureties and Insurers

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

5.03 Certificates of Insurance

A. CONTRACTOR shall deliver to OWNER, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by OWNER or any other additional insured) which CONTRACTOR is required to purchase and maintain. OWNER shall deliver to CONTRACTOR, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by CONTRACTOR or any other additional insured) which OWNER is required to purchase and maintain.

B. Additional insured are as follows:
The OWNER, its agents, ENGINEER, ENGINEER's Project Representative, ENGINEER's Consultants, Design Engineer, attorneys, servants, elected and appointed officials, officers and employees, and owners of property where the Work is to be completed.

5.04 CONTRACTOR's Liability Insurance

A. CONTRACTOR shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance of the Work and CONTRACTOR's other obligations under the Contract Documents, whether it is to be performed by CONTRACTOR, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

- 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;**
- 2. claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;**
- 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;**
- 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) by any other person for any other reason;**

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance so required by this paragraph 5.04 to be purchased and maintained shall:

1. with respect to insurance required by paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) OWNER, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering CONTRACTOR's indemnity obligations under paragraphs 6.07, 6.11, and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the CONTRACTOR pursuant to paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when CONTRACTOR may be correcting, removing, or replacing defective Work in accordance with paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two

years after final payment (and CONTRACTOR shall furnish OWNER and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to OWNER and any such additional insured of continuation of such insurance at final payment and one year thereafter).

5.04 Required Coverages

A. CONTRACTOR shall, prior to and at all times while providing, performing, or completing the Work, including, without limitation, at all times while repairing, correcting, or replacing all or any part of the Work that is defective, damaged, flawed, unsuitable, nonconforming, or that fails to meet warranty subject to correction by CONTRACTOR pursuant to Section 13.03 or Section 13.06 of these General Conditions of Contract, procure, maintain, and keep in force, at Contractor's expense, all insurance necessary to protect and save harmless OWNER, the Work, the Work Site, and all property located at or about the Work Site, including but not limited to the insurance coverages specified in Section 5.06 below and in the Special Conditions of Contract ("Required Coverages").

5.05 OWNER's Liability Insurance

A. In addition to the insurance required to be provided by CONTRACTOR under paragraph 5.04, OWNER, at OWNER's option, may purchase and maintain at OWNER's expense OWNER's own liability insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.

5.05 Insurance Companies and Policies

A. All Required Coverages shall be provided by insurance companies rated A VII or better in Best's Insurance Guide and otherwise acceptable to, and approved by, OWNER. Required Coverages may be in any combination of primary, excess, and umbrella policies. Any excess or umbrella policy must provide excess coverage over underlying insurance on a following-form basis such that when any loss covered by the primary policy exceeds the limits under the primary policy, the excess or umbrella policy becomes effective to cover such loss. No policy may have a deductible or self-insured retention of more than one percent of the policy limit. Contractor shall furnish to OWNER two copies

of a certificate of insurance for each Required Coverage. Each such certificate and policy shall be in a form satisfactory to OWNER and shall provide that no change, modification in, or cancellation of the insurance represented by it shall become effective until the expiration of 30 Days after written notice thereof shall have been given by the insurance company to OWNER and any Additional Insured.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, OWNER shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by OWNER prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by ENGINEER;

5. allow for partial utilization of the Work by OWNER;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR, and ENGINEER with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. OWNER shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with paragraph 5.07.

D. OWNER shall not be responsible for purchasing and maintaining any property insurance specified in this paragraph 5.06 to protect the interests of CONTRACTOR, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by CONTRACTOR, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If CONTRACTOR requests in writing that other special insurance be included in the property insurance

policies provided under paragraph 5.06, OWNER shall, if possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the Site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.

5.06 Insurance Coverages

A. Minimum Coverages: Unless otherwise provided in the Special Conditions of Contract, CONTRACTOR shall, prior to and at all times while providing, performing, or completing the Work, procure, maintain, and keep in force, at Contractor's expense, at least the following minimum insurance coverages:

1. Worker's Compensation and Employer's Liability with limits not less than:

(a) **Worker's Compensation:** Statutory;

(b) **Employer's Liability:**

\$1,000,000 injury-per occurrence

\$1,000,000 disease-per employee

\$1,000,000 disease-policy limit

Such insurance shall evidence that coverage applies to the State of the project and contain an "all States" endorsement.

2. Comprehensive Motor Vehicle Liability with a combined single limit of liability for bodily injury and property damage of not less than \$1,000,000 for vehicles owned, nonowned, or rented.

All employees must be included as insureds.

3. Comprehensive General Liability with coverage written on an "occurrence" basis and with limits no less than:

(a) **General Aggregate:** \$2,000,000

(b) **Bodily Injury and Property Damage:** \$1,000,000 per occurrence combined single limit

(c) **Other Coverages:** \$1,000,000 or as otherwise approved or required by Owner

Coverages shall include:

-- Premises Operations

-- Products/Completed Operations (to be maintained for two years following Final Payment)

-- Independent Contractors

-- Personal Injury (with Employment Exclusion deleted)

-- Broad Form Property Damage Endorsement

-- Blanket Contractual Liability (must expressly cover the indemnity provisions contained in the General Conditions of the Construction Contract)

-- Bodily injury and property damage

"X" Explosion, "C" Collapse, and "U" Underground exclusions shall be deleted.

Blasting exclusions shall be deleted if Work involves blasting.

Such insurance policies shall have all Railroad exclusions deleted, if any Work Site is within 50 feet of railroad tracks.

All employees shall be included as insureds.

4. Umbrella Liability Insurance: This coverage shall be written for a minimum of \$5,000,000 each occurrence for Bodily Injury and Property Damage.

This Policy shall apply in excess of the limits stated in 1., 2., and 3. above.

The required insurance described in 5.06 A2 through 5.06 A4 shall be endorsed to include, as additional insured, the OWNER, its agents, ENGINEER, ENGINEER's Project Representative, ENGINEER's Consultants, Design Engineer, attorneys, servants, elected and appointed officials, officers and employees, and owners of property where the Work is to be completed.

5. Builders Risk Insurance: This insurance shall be written in completed value form, shall protect CONTRACTOR, OWNER, and ENGINEER against "all risks" of direct physical loss to buildings, structures, equipment, and materials to

be used in providing, performing, and completing the Work, including without limitation fire, extended coverage, vandalism and malicious mischief, sprinkler, leakage, flood, earth movement and collapse, and shall be designed for the circumstances that may affect the Work.

This insurance shall be written with limits not less than the insurable value of the Work at completion. The insurable value shall include the aggregate value of all OWNER-furnished equipment and materials to be constructed or installed by CONTRACTOR.

This insurance shall include coverage while equipment or materials are in warehouses or storage areas, during installation, during testing, and after the Work is completed, but prior to Final Payment. This insurance shall include coverage while OWNER is occupying or using all or any part of the Work prior to Final Payment without the need for the insurance company's consent.

This insurance coverage requirement shall not be construed as a waiver of CONTRACTOR'S duties stated in Article 6 or these General Conditions of Contract.

6. OWNER'S and CONTRACTOR'S Protective Liability Insurance: CONTRACTOR, as its sole cost and expense, shall purchase this Insurance in the names of OWNER and ENGINEER, as will protect OWNER and ENGINEER against claims which may arise from operations under the Contract Documents, for the period between the Commencement Date and Final Payment, with a combined single limit of liability for bodily injury and property damage of \$5,000,000.

The named insureds for this insurance shall be the OWNER and ENGINEER (Greeley and Hansen LLC) (The "Named OCP Insureds"). The coverage afforded the Named OCP Insureds by this insurance shall be primary insurance for the Named OCP Insureds. If the Named OCP Insureds have other insurance which is applicable to the loss, such other insurance shall be on an excess or contingent basis. The amount of the insurance company's liability under this policy of insurance shall not be reduced by the existence of such other insurance. This policy of insurance shall be specifically endorsed to provide such primary coverage for OWNER and ENGINEER (Greeley and Hansen LLC). In addition

to the submittal requirements of Section 5.04 above, CONTRACTOR shall furnish to ENGINEER one copy of a certificate of insurance for this Required Coverage.

B. Additional Coverages: The insurance coverages and limits required by this Section shall be deemed to be minimum coverages and limits and shall not be construed in any way as a limitation on CONTRACTOR'S duty to carry adequate insurance as required by Section 5.04 above or on CONTRACTOR'S liability for losses and damages under this Contract. CONTRACTOR shall at all times carry such additional coverages and limits as may be necessary to fully comply with this Contract.

C. Subcontractor Insurance: Unless otherwise provided in the Special Conditions of Contract or unless otherwise approved by OWNER in a Change Order, CONTRACTOR shall not allow any Subcontractor to commence or continue any part of the Work until and unless such Subcontractor provides and has in force Comprehensive General Liability insurance coverage equal to \$2,000,000 or the amount of its Subcontract, whichever is greater, and Worker's Compensation and Employer's Liability and Comprehensive Motor Vehicle Liability insurance coverages equal to those required of CONTRACTOR by this Article.

5.07 Waiver of Rights

A. OWNER and CONTRACTOR intend intends that all policies purchased in accordance with paragraph 5.06 will protect OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. OWNER and CONTRACTOR waive waives all rights against each other OWNER and their respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to

the Work; and, in addition, waive all such rights against Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by OWNER as trustee or otherwise payable under any policy so issued.

No Waiver of Subrogation by Owner.
Notwithstanding any inconsistent or contrary provision in the General Conditions, the OWNER shall not be deemed to have waived any right of subrogation which it, its insurance carrier, any self insurance risk pool or risk management association, (or any combination of these entities) may have against the CONTRACTOR, the ENGINEER or any subcontractor of any tier for any damage caused by the CONTRACTOR, the ENGINEER, or any subcontractor of any tier, to OWNER or OWNER'S property.

B. OWNER waives all rights against CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to OWNER's property or the Work caused by, arising out of, or resulting from fire or other peril whether or not insured by OWNER; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by OWNER during partial utilization pursuant to paragraph 14.05, after Substantial Completion pursuant to paragraph 14.04, or after final payment pursuant to paragraph 14.07.

C. Any insurance policy maintained by OWNER covering any loss, damage or consequential loss referred to in paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against CONTRACTOR, Subcontractors, ENGINEER, or ENGINEER's Consultants and the officers, directors, partners, employees, agents, and

other consultants and subcontractors of each and any of them.

5.08 Receipt and Application of Insurance Proceeds

A. Any insured loss under the policies of insurance required by paragraph 5.06 will be adjusted with OWNER and made payable to OWNER as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.08.B. OWNER shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.

B. OWNER as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to OWNER's exercise of this power. If such objection be made, OWNER as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, OWNER as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, OWNER as fiduciary shall give bond for the proper performance of such duties.

5.09 Acceptance of Bonds and Insurance; Option to Replace

A. If either OWNER or CONTRACTOR has any objection to the coverage afforded by or other provisions of the Bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by paragraph 2.05.C. OWNER and CONTRACTOR shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the Bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent Bonds or insurance to protect such other party's interests at the expense of the

party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. CONTRACTOR shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of OWNER or ENGINEER in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

1. Relationship of the Parties

The Contractor shall act as an independent Contractor in the performance of the Work. No right of observation or review; requirement of approval; or other provision of the Contract or subsequent conduct of the parties shall be construed to create the relationship of principal and agent, partners, or joint adventurers between the parties. The rights of the Owner under this Contract, either directly or through the Engineer, in the control of the quality and completeness of the

Work shall not make the Contractor an agent of the Owner, and the liability of the Contractor for all damages to persons or to public or private property, arising from the Contractor's execution of the Work, shall not be lessened because of the existence, exercise or non-exercise of such rights.

B. At all times during the progress of the Work, CONTRACTOR shall assign a competent resident superintendent thereto who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the Site and shall have authority to act on behalf of CONTRACTOR. All communications given to or received from the superintendent shall be binding on CONTRACTOR.

6.02 *Labor; Working Hours*

A. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out, and construct the Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday, or any legal holiday without OWNER's written consent (which will not be unreasonably withheld) given after prior written notice to ENGINEER.

1. Normal working hours shall be as allowed by Laws or Regulations, or based on a schedule beginning between 7:00 a.m. and 6:00 p.m., excluding Work on Saturdays, Sundays and legal holidays, not exceeding forty (40) hours per week. If Work during other than normal working hours is scheduled by CONTRACTOR, except where specifically required in these Contract Documents, he shall reimburse OWNER for all of ENGINEER's charges to OWNER while acting as OWNER's representative.

2. Reimbursement for ENGINEER's charges shall be in amounts equal to ENGINEER's charges to OWNER for observation during hours other than normal working hours under the terms of

ENGINEER's agreement with OWNER. In event CONTRACTOR fails to pay such costs within thirty (30) days after receipt of an invoice from OWNER, the unpaid amount will be deducted from CONTRACTOR's pay estimates and charged to the Contract.

6.03 Services, Materials, and Equipment

A. Unless otherwise specified in the General Requirements, 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.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall 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. All materials and equipment shall 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.

1. All items of materials and equipment shall be properly protected against damage throughout the furnishing and performance of the Work so that they remain of good quality and in as-new condition.

2. Suppliers of materials and equipment shall furnish complete information as to preventive maintenance and operating requirements, parts lists in sufficient detail to facilitate ordering replacements, and any applicable special conditions. Should the manner or method of installation, specified performance or test results be contrary to the manufacturer's recommendations, CONTRACTOR shall promptly notify ENGINEER in writing of that conflict before proceeding with the Work; otherwise, he shall be deemed to have certified that the Specifications will be met by the materials or equipment, and that the cost and the time

required to perform or complete that Work have been included in the Contract Price and in CONTRACTOR's schedule for performing the Work within the Contract Times.

3. Should any workmanship or materials, equipment or supplies be needed that are not directly or indirectly set forth in the Contract Documents, but are nevertheless necessary to the proper execution according to the obvious intent thereof, the CONTRACTOR shall understand the same to be implied and shall provide what is needed in performing the Work.

6.04 Progress Schedule

A. CONTRACTOR shall adhere to the progress schedule established in accordance with paragraph 2.07 as it may be adjusted from time to time as provided below.

1. CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.07) proposed adjustments in the progress schedule that will not result in changing the Contract Times (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of Article 12. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

6.05 Substitutes and "Or-Equals"

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to ENGINEER for review under the circumstances described below.

1. **"Or-Equal" Items:** If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR is functionally equal to that named

and sufficiently similar so that no change in related Work will be required, it may be considered by ENGINEER as an "or-equal" item, in which case review and approval of the proposed item may, in ENGINEER's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

- a. in the exercise of reasonable judgment ENGINEER determines that: (i) it is at least equal in quality, durability, appearance, strength, and design characteristics; (ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;
- b. CONTRACTOR certifies that: (i) there is no increase in cost to the OWNER; and (ii) it will conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

- a. If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR does not qualify as an "or-equal" item under paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. CONTRACTOR shall submit sufficient information as provided below to allow ENGINEER to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR.
- c. The procedure for review by ENGINEER will be as set forth in paragraph 6.05.A.2.d, as supplemented in the General Requirements and as ENGINEER may decide is appropriate under the circumstances.
- d. CONTRACTOR shall first make written application to ENGINEER for review of a proposed substitute item of material or equipment that CONTRACTOR seeks to furnish or use. The application shall certify that the proposed substitute item will perform adequately the functions and achieve the results called for by the general

design, be similar in substance to that specified, and be suited to the same use as that specified. The application will state the extent, if any, to which the use of the proposed substitute item will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not 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 work on the Project) to adapt the design to the proposed substitute item and whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change, all of which will be considered by ENGINEER in evaluating the proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item.

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by ENGINEER. CONTRACTOR shall submit sufficient information to allow ENGINEER, in ENGINEER's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in subparagraph 6.05.A.2.

C. Engineer's Evaluation: ENGINEER will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.05.A and 6.05.B. ENGINEER will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized until ENGINEER's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." ENGINEER will advise CONTRACTOR in writing of any negative determination.

D. Special Guarantee: OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a

special performance guarantee or other surety with respect to any substitute.

E. ENGINEER's Cost Reimbursement: ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitute proposed or submitted by CONTRACTOR pursuant to paragraphs 6.05.A.2 and 6.05.B and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER approves a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such proposed substitute.

F. CONTRACTOR's Expense: CONTRACTOR shall provide all data in support of any proposed substitute or "or-equal" at CONTRACTOR's expense.

6.06 Concerning Subcontractors, Suppliers, and Others

A. CONTRACTOR shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to OWNER as indicated in paragraph 6.06.B), whether initially or as a replacement, against whom OWNER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to OWNER in advance for acceptance by OWNER by a specified date prior to the Effective Date of the Agreement, and if CONTRACTOR has submitted a list thereof in accordance with the Supplementary Conditions, OWNER's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. CONTRACTOR shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement,

shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work.

A. CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization, (including those who are to furnish the principal items of materials or equipment), whether initially or as a substitute, against whom OWNER may have reasonable objection.

B. Acceptance of any Subcontractor, other person or organization by OWNER shall not constitute a waiver of any right of OWNER to reject defective Work. CONTRACTOR shall not be required to employ any Subcontractor, other person or organization against whom CONTRACTOR has reasonable objection. The OWNER may require that all subcontractors that the CONTRACTOR will be using to perform the Work will execute the Subcontractor's Certification Statement bound into the Contract Documents within ten (10) days after CONTRACTOR enters into any subcontracts. CONTRACTOR shall submit to OWNER the executed Subcontractor's Certification Statement.

C. CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other individual or entity, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR.

E. CONTRACTOR shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with ENGINEER through CONTRACTOR.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcon-

tractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for CONTRACTOR by a Subcontractor or Supplier will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in paragraph 5.06, the agreement between the CONTRACTOR and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against OWNER, CONTRACTOR, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, CONTRACTOR will obtain the same.

6.07 Patent Fees and Royalties

A. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees or agents, and other consultants 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 any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design,

process, product, or device not specified in the Contract Documents.

6.08 Permits

A. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto, such as plant investment fees.

6.09 Laws and Regulations

A. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

B. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work may be the subject of an adjustment in Contract Price or Contract Times. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in paragraph 10.05.

6.10 Taxes

A. CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

B. The materials and supplies to be used in the Work of the Contract may be exempt from the Sales and Use Tax of the place of the Project. In this case, CONTRACTOR shall obtain the proper certifications, maintain the necessary records, and otherwise comply with the requirements of applicable law.

6.11 Use of Site and Other Areas

A. Limitation on Use of Site and Other Areas

1. CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultant, and the officers, directors, partners, employees, agents, and other consultants 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 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 by or based upon CONTRACTOR's performance of the Work.

B. Removal of Debris During Performance of the Work: During the progress of the Work CONTRACTOR shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish,

and other debris shall conform to applicable Laws and Regulations.

C. Cleaning: Prior to Substantial Completion of the Work CONTRACTOR shall clean the Site and make it ready for utilization by OWNER. At the completion of the Work CONTRACTOR shall remove from the Site 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.

D. Loading Structures: 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 property to stresses or pressures that will endanger it.

6.12 Record Documents

A. CONTRACTOR shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to ENGINEER for OWNER.

B. CONTRACTOR shall submit to ENGINEER periodic reports recording the status of the Work at the site, labor and equipment utilized, materials and equipment received, visits by Suppliers, and other similar pertinent information. Such reports shall be at intervals as approved by ENGINEER but not less frequent than monthly.

6.13 Safety and Protection

A. CONTRACTOR shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with 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

a. In the event of temporary suspension of the Work, or during inclement weather, CONTRACTOR shall, and shall cause Subcontractors, to protect carefully the Work and materials against damage or injury from the weather. If, in the opinion the OWNER, any portion of Work or materials shall have been damaged or injured by reason of failure on the part of CONTRACTOR or any Subcontractors to so protect the Work, such Work and materials shall be removed and replaced at the expense of CONTRACTOR.

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

a. Contractor's Sole Responsibility

Contractor shall be solely and completely responsible for conditions of the Work site or sites, including safety of all persons and property during performance of the Work. This requirement will apply continuously and shall not be limited to normal working hours. Contractor shall take all safety precautions as shall be necessary to prevent damage to persons or property.

b. No Duty. The duty of the OWNER or ENGINEER to observe CONTRACTOR's performance does not include any review of the adequacy of CONTRACTOR's safety measures in, on, or near the Work site or sites. ENGINEER has not been retained or compensated to provide design and construction review services relating to CONTRACTOR's safety precautions required for CONTRACTOR to perform the Work.

c. No Liability. Neither the OWNER, nor any official or employee of the OWNER, nor the ENGINEER, or any authorized assistant or agent of any of them, shall be responsible for safety precautions and programs in connection with the Work, or any liability arising therefrom.

d. Protection of Operations. The CONTRACTOR shall take all necessary

precautions so as to cause no unauthorized interruption in any essential part of Pumping Station operations. Pumping Station operations must be maintained at the same level during construction as existed prior to construction except as otherwise provided.

The Village officials shall retain the authority to require the cessation of construction activities and return to service of any component of the Pumping Station should the need arise.

e. Accident Records Maintenance. CONTRACTOR shall maintain an accurate record of all accidents resulting in death, injury, occupational disease, or damage to any property whether or not that of the OWNER and shall promptly report any of the same to the OWNER.

f. Kotecki Waiver. CONTRACTOR (and any subcontractor into whose subcontract this clause is incorporated) agrees to assume the entire liability for all personal injury claims suffered by its own employees asserted by persons allegedly injured on the Project; waives any limitation of liability defense based upon the Worker's Compensation Act, court interpretations of said Act or otherwise; and agrees to indemnify and defend the OWNER and ENGINEER and DESIGN ENGINEER and their agents, employees and consultants (the "Indemnitees") from and against all such loss, expense, damage or injury, including reasonable attorneys' fees, that the Indemnitees may sustain as a result of such claims, except to the extent that Illinois law prohibits indemnity for the Indemnitees' own negligence.

B. 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 owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property. All damage, injury, or loss to any property referred to in paragraph 6.13.A.2 or 6.13.A.3 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 (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or ENGINEER or ENGINEER's Consultant, 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's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 Safety Representative

A. CONTRACTOR shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 Hazard Communication Programs

A. CONTRACTOR shall be responsible for coordinating any exchange of 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.

6.16 Emergencies

A. 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 threatened 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 thereby or are required as a result thereof. If ENGINEER determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 Shop Drawings and Samples

A. CONTRACTOR shall submit Shop Drawings to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. All submittals will be identified as ENGINEER may require and in the number of copies specified in the General Requirements. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show ENGINEER the services, materials, and equipment CONTRACTOR proposes to provide and to enable ENGINEER to review the information for the limited purposes required by paragraph 6.17.E.

B. CONTRACTOR shall also submit Samples to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers, and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.17.E. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER as required by paragraph 2.07, any related Work performed prior to ENGINEER's review and approval of the pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.

D. Submittal Procedures

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

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

b. all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto; and

d. CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

3. At the time of each submittal, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to ENGINEER for review and approval of each such variation.

E. ENGINEER's Review

1. ENGINEER will timely review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER. ENGINEER's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. ENGINEER's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. ENGINEER's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of each submittal as required by paragraph 6.17.D.3 and ENGINEER has given written approval of each such

variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.17.D.1.

4. ENGINEER, generally, will process shop drawings and return them to the CONTRACTOR in not more than 10 working days from day of receipt. If the nature of the shop drawing is such that the review cannot be completed in 10 working days, ENGINEER will advise the CONTRACTOR giving a schedule for performing the review."

a. Special Requirements for Structural Design.

All structures to be provided by the CONTRACTOR, (except those structures for which details are shown on the Contract Drawings), that require structural design shall be designed and constructed under the supervision of a structural engineer, registered in the State of the Project (or a qualified professional engineer for the state without provision of structural engineer registration), acting for and retained by the CONTRACTOR. Drawings and calculations for such structures shall be prepared and sealed by the structural engineer and submitted to the ENGINEER for record. A clear outline of the proposed construction procedure shall be shown on the drawings. A statement in writing by the structural engineer attesting that said engineer has visited the Work site or sites, that the design does satisfy the conditions as actually encountered and that the actual construction conforms to the drawings and calculations, as submitted, must be submitted to the ENGINEER before the Work related to such structures will be considered complete.

All temporary structures, including sheeting and bracing for excavations, that affect the safety of the public, workmen, Inspectors, or OWNER's or ENGINEER's personnel shall be regarded as structures that require structural design.

F. Resubmittal Procedures

1. CONTRACTOR shall make corrections required by ENGINEER and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

6.18 *Continuing the Work*

A. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.04 or as OWNER and CONTRACTOR may otherwise agree in writing.

6.19 *CONTRACTOR's General Warranty and Guarantee*

A. CONTRACTOR warrants and guarantees to OWNER, ENGINEER, and ENGINEER's Consultants that all Work will be in accordance with the Contract Documents and will not be defective. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors, Suppliers, or any other individual or entity for whom CONTRACTOR is responsible; or

2. normal wear and tear under normal usage.

B. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents:

1. observations by ENGINEER;

2. recommendation by ENGINEER or payment by OWNER of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by ENGINEER or any payment related thereto by OWNER;

4. use or occupancy of the Work or any part thereof by OWNER;

5. any acceptance by OWNER or any failure to do so;

6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER;

7. any inspection, test, or approval by others; or

8. any correction of defective Work by OWNER.

C. The CONTRACTOR further warrants and guarantees that all Work and services to be performed under this Contract, and all workmanship, materials, equipment and supplies performed, furnished, used or installed in the construction of same, shall be free from defects and flaws in workmanship and shall be fit and sufficient for the purposes expressed in, or reasonably inferred from the Contract Documents. The CONTRACTOR further warrants and guarantees that the strength of all parts of all manufactured materials, equipment and supplies shall be adequate, and as specified, and that the performance requirements of the Contract shall be fulfilled.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other 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 performance of the Work, provided that any such claim, cost, loss, or damage:

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

2. is caused in whole or in part by any negligent act or omission of CONTRACTOR, any Subcontractor, any Supplier, or any 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, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and

Regulations regardless of the negligence of any such individual or entity.

B. In any and all claims against OWNER or ENGINEER or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, or any 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, the indemnification obligation under paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of CONTRACTOR under paragraph 6.20.A shall not extend to the liability of ENGINEER and ENGINEER's Consultants or to the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them arising out of:

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

ARTICLE 7 - OTHER WORK

7.01 *Related Work at Site*

A. OWNER may perform other work related to the Project at the Site by OWNER's employees, or let other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to CONTRACTOR prior to starting any such other work; and
2. if OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in paragraph 10.05.

B. CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (and OWNER, if OWNER is performing the other work with OWNER's employees) proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

C. If the proper execution or results of any part of CONTRACTOR's Work depends upon work performed by others under this Article 7, CONTRACTOR shall inspect such other work and promptly report to ENGINEER in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of CONTRACTOR's Work. CONTRACTOR's failure to so report will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If OWNER intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
2. the specific matters to be covered by such authority and responsibility will be itemized; and
3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility for such coordination.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.02 *Replacement of ENGINEER*

A. In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer to whom CONTRACTOR makes no reasonable objection, whose status under the Contract Documents shall be that of the former ENGINEER.

8.03 *Furnish Data*

A. OWNER shall promptly furnish the data required of OWNER under the Contract Documents.

8.04 *Pay Promptly When Due*

A. OWNER shall make payments to CONTRACTOR promptly when they are due as provided in paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.01 and 4.05. Paragraph 4.02 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or

A. In the event that Contractor or others performing any portion of the Work encounter in the soil, air, or water at the Site, materials reasonably believed to be or contain "hazardous constituents," as the term and its derivatives are defined under the environmental laws, including those wastes and substances which are brought to the Site by Contractor, in levels in excess of any applicable standards set forth under the environmental laws, Contractor shall immediately stop the Work in the area affected and report the condition to Owner and Engineer and confirm such report within 24

contiguous to the Site that have been utilized by ENGINEER in preparing the Contract Documents.

8.06 *Insurance*

A. OWNER's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. OWNER is obligated to execute Change Orders as indicated in paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. OWNER's responsibility in respect to certain inspections, tests, and approvals is set forth in paragraph 13.03.B.

8.09 *Limitations on OWNER's Responsibilities*

A. 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.

8.10 *Undisclosed Hazardous Environmental Condition*

~~A. OWNER's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in paragraph 4.06.~~

hours in writing. Contractor shall take reasonable precautions to prevent or contain the release, movement, spread, or disturbance of such Hazardous Constituents and to protect persons and property and shall notify Owner and Engineer immediately of such actions.

B. CONTRACTOR shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work.

Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, subcontractors, suppliers, or anyone else for whom Contractor is responsible.

C. All Hazardous Constituents which must be disposed of or treated, stored, or removed from the Site, shall be collected, handled, transported, treated, stored, disposed of, or otherwise remediated in accordance with all laws and the Contract Documents for the Work and procedures approved in advance by Owner and delivered to a disposal site or other facility, acceptable to Owner, at Owner's sole discretion. In the event that the Hazardous Constituents existed at the Site prior to the commencement of the Work, Owner shall be responsible for arranging for the collection, handling, transportation, treatment, storage, and disposal of such Hazardous Constituents in accordance with such procedures. In the event that the Hazardous Constituents were introduced at the Site by Contractor, subcontractors, or any other person or entity performing any portion of the Work, Contractor shall collect, handle, transport, treat, store, and dispose of such Hazardous Constituents in accordance with such procedures and Environmental Laws provided, however, Contractor shall not communicate with or submit any document to a governmental authority or agency referring or relating to the Site without first obtaining the Owner's approval. Contractor shall perform the Work to minimize improper activities by subcontractors, and any other person or entity performing any portion of the Work, in connection with any Hazardous Constituents. Contractor shall coordinate the Work with the entities that collect, handle, transport, treat, store, and dispose of such Hazardous Constituents. Copies of all waste manifests for waste to be disposed of by Contractor shall be furnished to Owner. Contractor shall provide to the Owner any requested record concerning the Site which Contractor Possesses or can reasonably obtain and shall provide such information that the Owner may reasonably require from time to time to determine compliance by Contractor with this paragraph.

D. CONTRACTOR shall not under any circumstances apply to, or enter into negotiations with, any governmental authority or agency for acceptance of variations from or revisions to safety or health, or air, water, noise pollution, or other environmental laws or regulations relating to the Contract or the Work or to the performance thereof, without Owner's prior written consent.

E. To the fullest extent permitted by law, Contractor shall indemnify and hold harmless Owner, Engineer, Engineer's consultants, and the officers, directors, partners, employees, agents, other 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 a hazardous environmental condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this paragraph E. shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

8.11 Evidence of Financial Arrangements

A. If and to the extent OWNER has agreed to furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER's obligations under the Contract Documents, OWNER's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

8.12 OWNER will not be responsible for the acts or omissions of CONTRACTOR or any Subcontractor or Supplier, or other persons or organizations, or of anyone for whose acts any of them may be liable.

8.13 OWNER's review of any of the CONTRACTOR'S Progress Schedule Submittals, or OWNER'S decision to raise or not to raise any objections about those Submittals, shall not in any way whatsoever impose on OWNER a responsibility for the planning, scheduling or execution of the Work.

8.14 OWNER'S authority to object to any of CONTRACTOR's progress schedules, or to any of the insurance that CONTRACTOR is required to purchase or maintain, shall not in any way give rise to any duty or responsibility on the part of OWNER to exercise the authority for the benefit of CONTRACTOR, any Subcontractor or Supplier, or any other person or organization, or any other third party.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 OWNER'S Representative

A. ENGINEER will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set

forth in the Contract Documents and will not be changed without written consent of OWNER and ENGINEER.

9.02 Visits to Site

A. ENGINEER will make visits to the Site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and observations, ENGINEER, for the benefit of OWNER, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. ENGINEER's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defective Work.

B. ENGINEER's visits and observations are subject to all the limitations on ENGINEER's authority and responsibility set forth in paragraph 9.10, and particularly, but without limitation, during or as a result of ENGINEER's visits or observations of CONTRACTOR's Work ENGINEER will not supervise, direct, control, or have authority over or 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.

9.03 Project Representative

A. If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in providing more extensive observation of the Work. The responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.10 and in the Supplementary Conditions. If OWNER designates another representative or agent to represent OWNER at the Site who is not ENGINEER's Consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 Clarifications and Interpretations

A. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a written clarification or interpretation, a Claim may be made therefor as provided in paragraph 10.05.

9.05 Authorized Variations in Work

A. ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which 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. These may be accomplished by a Field Order and will be binding on OWNER and also on CONTRACTOR, who shall perform the Work involved promptly. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of a Field Order, a Claim may be made therefor as provided in paragraph 10.05.

9.06 Rejecting Defective Work

A. ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be defective, or that ENGINEER believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. ENGINEER will also have authority to require special inspection or testing of the Work as provided in paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.07 Shop Drawings, Change Orders and Payments

A. In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraph 6.17.

B. In connection with ENGINEER's authority as to Change Orders, see Articles 10, 11, and 12.

C. In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

9.08 *Determinations for Unit Price Work*

A. 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, subject to the provisions of paragraph 10.05.

9.09 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work, the quantities and classifications of Unit Price Work, the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, and Claims seeking changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing, in accordance with the provisions of paragraph 10.05, with a request for a formal decision.

B. When functioning as interpreter and judge under this paragraph 9.09, ENGINEER will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by ENGINEER pursuant to this paragraph 9.09 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.07) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

9.10 *Limitations on ENGINEER's Authority and Responsibilities*

A. Neither ENGINEER's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by ENGINEER shall create, impose, or give rise to any

duty in contract, tort, or otherwise owed by ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

1) Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved" or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper" or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review or judgment of ENGINEER as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the Work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.10 B or paragraph 9.10 C.

B. ENGINEER will not supervise, direct, control, or have authority over or 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. ENGINEER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

C. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. ENGINEER's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this paragraph 9.10 shall also apply to ENGINEER's Consultants, Resident Project Representative, and assistants.

F. The duties, responsibilities and limitations of authority of the Resident Project Representative (RPR) and assistants as defined in paragraphs 9.03 and 9.10 of the General Conditions shall be as follows:

The duties and responsibilities of the RPR and assistants are limited to those of ENGINEER described in the construction Contract Documents, and are further limited and described as follows:

a. General

RPR is ENGINEER's representative at the site, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding RPR's actions. RPR's dealings in matters pertaining to the on-site work shall in general be with ENGINEER and CONTRACTOR keeping OWNER advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and approval of CONTRACTOR. RPR shall generally communicate with OWNER with the knowledge of and under the direction of ENGINEER.

b. Duties and Responsibilities of RPR

1. Schedules: Review the progress schedule, schedule of Shop Drawing submittals and schedule of values prepared by CONTRACTOR and consult with ENGINEER concerning acceptability.

2. Conferences and Meetings: Attend meetings with CONTRACTOR, such as preconstruction conferences, progress meetings, job conferences and other project-related meetings.

3. Liaison:

a) Serve as ENGINEER's liaison with CONTRACTOR, working principally through CONTRACTOR's superintendent and assist in understanding the intent of the Contract Documents; and assist ENGINEER in serving as OWNER's liaison with CONTRACTOR when

CONTRACTOR's operations affect OWNER's on-site operations.

b) Assist in obtaining from OWNER additional details or information, when required for proper execution of the Work.

4. Shop Drawings & Samples:

a) Record date of receipt of Shop Drawings and samples.

b) Receive samples which are furnished at the site by CONTRACTOR, and notify ENGINEER of availability of samples for examination.

c) Advise ENGINEER and CONTRACTOR of the commencement of any Work requiring a Shop Drawing or sample if the submittal has not been approved by ENGINEER.

5. Review of Work, Rejection of Defective Work, Inspections and Tests:

a) Conduct on-site observations of the Work in progress to assist ENGINEER in determining if the Work is in general proceeding in accordance with the Contract Documents.

b) Report to ENGINEER whenever RPR believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise ENGINEER of Work that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

c) Observe that tests, equipment and systems startups and operating and maintenance training are conducted in the presence of appropriate personnel and that CONTRACTOR maintains adequate records thereof; and observe, record and report to ENGINEER appropriate details relative to test procedures and startups.

- d) Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to ENGINEER.

6. Interpretation of Contract Documents:

Report to ENGINEER when clarifications and interpretations of the Contract Documents are needed and transmit to CONTRACTOR clarifications and interpretations as issued by ENGINEER.

7. Modifications:

Consider and evaluate CONTRACTOR's suggestions for modifications in Drawings or Specifications and report with RPR's recommendations to ENGINEER. Transmit to CONTRACTOR decisions as issued by ENGINEER.

8. Records:

a) Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, ENGINEER's clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.

b) Keep a diary or log book, recording hours on the job site, weather conditions, data relative to questions of Work Directive Changes, Change Orders or changed conditions, list of job site visitors, Work activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures.

c) Record names, addresses and telephone numbers of all CONTRACTORS, subcontractors and major suppliers of materials and equipment.

9. Reports:

a) Furnish ENGINEER periodic reports as required of progress of the Work and of CONTRACTOR's compliance with the progress schedule and schedule of Shop Drawing and sample submittals.

b) Consult with ENGINEER in advance of scheduled major tests, inspections or start of important phases of the Work.

c) Draft proposed Change Orders and Work Change Directives, obtaining backup material from CONTRACTOR and recommend to ENGINEER Change Orders, Work Change Directives, and Field Orders.

d) Report immediately to ENGINEER and OWNER upon the occurrence of any accident.

10. Payment Requests:

Review applications for payment with CONTRACTOR for compliance with the established procedure for their submission and forward with recommendations to ENGINEER, noting particularly the relationship of the payment requested to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.

11. Certificates, Maintenance and Operation Manuals:

During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by CONTRACTOR are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to ENGINEER for review and forwarding to OWNER prior to final payment for the Work.

12. Completion:

a) When CONTRACTOR advises that Work is near completion, review Work with CONTRACTOR and submit to

CONTRACTOR a list of observed items requiring completion or correction.

b) Conduct a final review in the company of ENGINEER, OWNER, and CONTRACTOR and prepare a final list of items to be completed or corrected.

c) Observe that all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance.

c. Limitations of Authority

Resident Project Representative:

1. Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by ENGINEER.

2. Shall not exceed limitations of ENGINEER's authority as set forth in the Agreement or the Contract Documents.

3. Shall not undertake any of the responsibilities of CONTRACTOR, subcontractors or CONTRACTOR's superintendent.

4. Shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.

5. Shall not advise on, nor issue directions regarding nor assume responsibilities regarding safety and protection in connection with the Work.

6. Shall not accept Shop Drawing or sample submittals from anyone other than CONTRACTOR.

7. Shall not authorize OWNER to occupy the Project in whole or in part.

8. Shall not participate in specialized field or laboratory tests or Work conducted by others except as specifically authorized

by ENGINEER.

G. On-site observations by ENGINEER, Resident Project Representative and assistants shall not relieve CONTRACTOR from his obligations to perform the Work in accordance with the Contract Documents, represent acceptance of defective Work, or give rise to any duty on their part to make the observations for the benefit of CONTRACTOR or any other party.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Written Amendment, a Change Order, or a Work Change Directive. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If OWNER and CONTRACTOR are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. 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 as provided in paragraph 3.04, except in the case of an emergency as provided in paragraph 6.16 or in the case of uncovering Work as provided in paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) covering:

1. changes in the Work which are: (i) ordered by OWNER pursuant to paragraph 10.01.A, (ii) required because of acceptance of defective Work under paragraph 13.08.A or OWNER's correction of defective Work under paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the 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; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.18.A.

4. A Change Order, or Work Change Directive signed by the OWNER and also signed by the CONTRACTOR provides for an all inclusive settlement for all changes to the Work involved and for all direct, supplemental, indirect, consequential and cumulative costs and delays, and CONTRACTOR's signature represents a waiver of any and all rights to file a claim on account of that instrument.

5. A Change Order, or Work Change Directive signed by OWNER, but not signed by CONTRACTOR, or signed by CONTRACTOR with a notice of reservation or rights to claim additional adjustments, shall become final and binding on CONTRACTOR, without consideration of his reservation of rights, unless he delivers to OWNER written notice of a claim within thirty-(30)-days- seven (7) calendar days after receipt of that instrument.

6. Any proposed Change Order is subject to approval by the Owner in accordance with the requirements of Section 33 E-9, Act 5, of the Illinois Criminal Code of 1961. (720 Illinois Compiled Statutes 5/33E-9)

10.04 Notification to Surety

A. If notice 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) is required by the provisions of any Bond to be given to a surety, 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.

10.05 Claims and Disputes

A. *Notice:* Written notice stating the general nature of each Claim, dispute, or other matter shall be delivered by the claimant to ENGINEER and the other party to the Contract promptly (but in no event later than 30-days **seven calendar days**) after the start of the event giving rise thereto. Notice of the amount or extent of the Claim, dispute, or other matter with supporting data shall be delivered to the ENGINEER and the other party to the Contract within 60-days **fifteen calendar days** after the start of such event (unless ENGINEER allows additional time for claimant to submit additional or more accurate data in support of such Claim, dispute, or other matter). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to ENGINEER and the claimant within 30-days **seven calendar days** after receipt of the claimant's last submittal (unless ENGINEER allows additional time).

B. *ENGINEER's Decision:* ENGINEER will render a formal decision in writing within 30-days **fifteen days** after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any. ENGINEER's written decision on such Claim, dispute, or other matter will be final and binding upon OWNER and CONTRACTOR unless:

1. an appeal from ENGINEER's decision is taken within the time limits and in accordance with the dispute resolution procedures set forth in Article 16; or

2. if no such dispute resolution procedures have been set forth in Article 16, a written notice of intention to appeal from ENGINEER's written decision is delivered by OWNER or CONTRACTOR to the other and to ENGINEER within 30 days after the date of such decision, and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction within 60 days after the date of such decision or within 60 days after Substantial Completion, whichever is later (unless otherwise agreed in writing by OWNER and CONTRACTOR), to exercise such rights or remedies as the appealing party may have with respect to such Claim, dispute, or other matter in accordance with applicable Laws

and Regulations.

C. If ENGINEER does not render a formal decision in writing within the time stated in paragraph 10.05.B, a decision denying the Claim in its entirety shall be deemed to have been issued 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

D. No Claim for an adjustment in Contract Price or Contract Times (or Milestones) will be valid if not submitted in accordance with this paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

11.01 Cost of the Work

A. *Costs Included:* The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to CONTRACTOR will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon by OWNER and CONTRACTOR. Such employees shall include without limitation superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by OWNER.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

3. Payments made by CONTRACTOR to Subcontractors for Work performed by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from subcontractors acceptable to OWNER and CONTRACTOR and shall deliver such bids to OWNER, who will then determine, with the advice of ENGINEER, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as CONTRACTOR's Cost of the Work and fee as provided in this paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of CONTRACTOR.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All

such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expressage, and similar petty cash items in connection with the Work.

i. When the Cost of the Work is used to determine the value of a Change Order or of a Claim, the cost of premiums for additional Bonds and insurance required because of the changes in the Work or caused by the event giving rise to the Claim.

j. When all the Work is performed on the basis of cost-plus, the costs of premiums for all Bonds and insurance CONTRACTOR is required by the Contract Documents to purchase

and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnerships and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by CONTRACTOR, whether at the Site or in CONTRACTOR's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.01.A.1 or specifically covered by paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the Site.

3. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

4. Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraphs 11.01.A and 11.01.B.

C. *CONTRACTOR's Fee:* When all the Work is performed on the basis of cost-plus, CONTRACTOR's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, CONTRACTOR's fee shall be determined as set forth in paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to paragraphs 11.01.A and 11.01.B, CONTRACTOR will

establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

11.02 Cash 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 as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

1. the 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 costs, overhead, profit, and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

B. Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 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. 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. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER subject to the provisions of paragraph 9.08.

B. 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.

C. OWNER or CONTRACTOR may make a Claim for an adjustment in the Contract Price in accordance with paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. if CONTRACTOR believes that CONTRACTOR is entitled to an increase in Contract Price as a result of having incurred additional expense or OWNER believes that OWNER is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 Change of Contract Price

A. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 12.01.B.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in paragraph 11.01) plus a CONTRACTOR's fee for overhead and profit

(determined as provided in paragraph 12.01.C).

C. CONTRACTOR's Fee: The CONTRACTOR's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or
2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under paragraphs 11.01.A.1 and 11.01.A.2, the CONTRACTOR's fee shall be 15 percent;
 - b. for costs incurred under paragraph 11.01.A.3, the CONTRACTOR's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and CONTRACTOR will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. no fee shall be payable on the basis of costs itemized under paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
 - e. the amount of credit to be allowed by CONTRACTOR to OWNER for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in CONTRACTOR's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 Change of Contract Times

A. The Contract Times (or Milestones) may only be changed by a Change Order or by a Written Amendment.

Any Claim for an adjustment in the Contract Times (or Milestones) shall be based on written notice submitted by the party making the claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. Any adjustment of the Contract Times (or Milestones) covered by a Change Order or of any Claim for an adjustment in the Contract Times (or Milestones) will be determined in accordance with the provisions of this Article 12.

12.03 Delays Beyond CONTRACTOR's Control

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in paragraph 12.02.A. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, **different site conditions, unusual delay in transportation, or acts of God.**

12.04 Delays Within CONTRACTOR's Control

A. The Contract Times (or Milestones) will not be extended due to delays within the control of CONTRACTOR. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

12.05 Delays Beyond OWNER's and CONTRACTOR's Control

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay.

12.06 Delay Damages

A. In no event shall OWNER or ENGINEER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages

arising out of or resulting from:

1. delays caused by or within the control of CONTRACTOR; or
2. delays beyond the control of both OWNER and CONTRACTOR including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, **differing site conditions, unusual delay in transportation**, or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

B. Nothing in this paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to actions or inactions of OWNER or anyone for whom OWNER is responsible.

C. **No Damage for Delay.** No payment, compensation or adjustment of any kind other than the extension of time provided for below shall be made to the CONTRACTOR for damages because of hindrances or delays from any cause in the commencement, prosecution or completion of the Work, including but not limited to:

- (i) any act or omission on the part of the OWNER or the ENGINEER or any other contractor employed by the OWNER, or any of their officers, agents, or employees with respect to late drawings, plans or specifications, changes in sequence, lack of decision, acceleration, deceleration, lack of access, lack of right-of-way or easement, interference, errors, suspensions, lack of approvals, erroneous bid specifications, lack of payments, issuance of change orders, occupancy, or use or placement into service of the building, structure, equipment, or appurtenances to be constructed hereunder prior to final completion and acceptance of the Work;
- (ii) **differing site conditions;**
- (iii) presence and operations of other contractors;
- (iv) **strikes, lockouts, labor or material shortages;**
- (v) **unusual delay in transportation;**

(vi) **acts of God, such as tornadoes, earthquakes or floods, or extreme weather which can be demonstrated to be unusually severe considering the time of year and particular locality involved;**

Whether such hinderance or delays be avoidable or unavoidable, the CONTRACTOR agrees that it shall make no claim for, nor be entitled to, compensatory, acceleration, disruption damages or mitigation of liquidated damages, if any, or any other damages of any kind or nature for any such delays or hindrances and will accept in full satisfaction for such delays the extension of time set forth below. The no damage for delay provision of this paragraph 12.06 C shall include, but shall not be limited to, increase in time-related costs, additional equipment, effect on other contracts, increased premiums, lower labor productivity, lost alternative income, additional labor head count, additional premium time labor, additional supervision and demobilization and remobilization costs.

1. **Avoidable Delays.** Avoidable delays or hindrances in the commencement, prosecution or completion of the Work shall include all delays from any cause whatsoever that might have been avoided in the exercise of care, prudence, foresight, or diligence on the part of the Contractor. Delays in the prosecution of parts of the Work that may in themselves be unavoidable but do not necessarily prevent or delay the prosecution or other parts of the Work nor the completion of the whole Work within the time herein specified, reasonable loss of time resulting from the necessity of submitting plans to the Engineer for review, from the making of surveys, measurements and inspections, and from such interruptions as may occur in the prosecution of the Work on account of the reasonable interference of other contractors employed by the OWNER which do not necessarily prevent the completion of the Work within the time herein specified shall be deemed avoidable delays within the meaning of this Contract.

2. **Unavoidable Delays.** Unavoidable delays in the prosecution or completion of the Work under this Contract shall include all delays which may through causes beyond the

control of the CONTRACTOR and which it could not have provided against by the exercise of care, prudence, foresight or diligence. Orders issued by the OWNER changing the amount of Work to be done, the quantity of material to be furnished, or the manner in which the Work is to be prosecuted, failure of the OWNER to provide rights-of-way, and unforeseen delays in the completion of the work of other contractors under contract with the OWNER will be considered unavoidable delays, so far as they necessarily interfere with the CONTRACTOR's completion of the whole of the Work.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which OWNER or ENGINEER has actual knowledge will be given to CONTRACTOR. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. OWNER, ENGINEER, ENGINEER's Consultants, other representatives and personnel of OWNER, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

A. CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. OWNER shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by paragraphs 13.03.C and 13.03.D below;
2. that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.04.B shall be paid as provided in said paragraph 13.04.B; and
3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish ENGINEER the required certificates of inspection or approval.

D. CONTRACTOR shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for OWNER's and ENGINEER's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to OWNER and ENGINEER.

1) If the testing, inspection or approval reveals failure of any part of the Work, CONTRACTOR shall not be allowed to recover any associated costs, and he shall reimburse OWNER for all of direct, indirect and consequential costs made necessary by that failure including those of repeated procedures and compensation for ENGINEER's services.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by CONTRACTOR without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation.

F. Uncovering Work as provided in paragraph 13.03.E shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written

request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

B. If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment. If it is found that such Work is defective, CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If, however, such Work is not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

13.05 OWNER May Stop the Work

A. If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will not conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 Correction or Removal of Defective Work

A. CONTRACTOR shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by ENGINEER, remove it from the Project and replace it with Work that is not

defective. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.07 Correction Period

A. If within one year after the date of **Substantial Completion final payment for the Work by Owner** or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for CONTRACTOR's use by OWNER or permitted by Laws and Regulations as contemplated in paragraph 6.11.A is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) repair such defective land or areas, or (ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or repaired or may have the rejected Work removed and replaced, and all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.

B. In special circumstances where a particular item of equipment is placed in continuous service before **Substantial Completion of all the Work final payment for the Work by Owner**, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

C. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been

satisfactorily completed.

D. CONTRACTOR's obligations under this paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 Acceptance of Defective Work

A. If, instead of requiring correction or removal and replacement of defective Work, OWNER (and, prior to ENGINEER's recommendation of final payment, ENGINEER) prefers to accept it, OWNER may do so. CONTRACTOR shall pay 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) attributable to OWNER's evaluation of and determination to accept such defective Work (such costs to be approved by ENGINEER as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by CONTRACTOR pursuant to this sentence. If any such acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and OWNER shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

13.09 OWNER May Correct Defective Work

A. If CONTRACTOR fails within a reasonable time after written notice from ENGINEER to correct defective Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.06.A, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days written notice to CONTRACTOR, correct and remedy any such deficiency.

B. In exercising the rights and remedies under this paragraph, OWNER shall proceed expeditiously. In connection with such corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the Site, take possession of all or part of the Work and suspend CONTRACTOR's services related thereto, take

possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees, OWNER's other contractors, and ENGINEER and ENGINEER's Consultants access to the Site to enable OWNER to exercise the rights and remedies under this paragraph.

C. 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) incurred or sustained by OWNER in exercising the rights and remedies under this paragraph 13.09 will be charged against CONTRACTOR, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, OWNER may make a Claim therefor as provided in paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of CONTRACTOR's defective Work.

D. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies under this paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Schedule of Values

A. The schedule of values established as provided in paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 Progress Payments

A. Applications for Payments

1. At least 20 days before the date established for each progress payment (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment

filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that OWNER has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect OWNER's interest therein, all of which must be satisfactory to OWNER.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of CONTRACTOR stating that all previous progress payments received on account of the Work have been applied on account to discharge CONTRACTOR's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

4. Unless a different method of payment is set forth in the Contract Agreement, the OWNER shall pay to the CONTRACTOR ninety percent (90%) of the Work completed and of materials and equipment not incorporated in the Work but delivered and suitably stored at the site, accompanied by documentation satisfactory to OWNER up to the day before the Application for Progress Payment, less the aggregate of all previous progress payments (10% retainage). The total amount paid in this manner prior to the final acceptance of the completed Work by the OWNER shall not exceed ninety percent (90%) of the Contract Price.

Payment for off-site storage is normally reserved for sensitive or very large pieces of equipment that in ENGINEER's opinion would not be practical to have stored on the site. Payment for off-site stored items shall be limited to 75% of the invoiced value of the item, less contract retainage. The remaining 25% of the invoiced value of the item, less contract retainage, will be paid when the equipment item is installed in its designated location at the Work site. CONTRACTOR shall reimburse OWNER the cost

of inspecting off-site stored items. When off-site storage is approved, CONTRACTOR shall provide Insurance Certificate and Document of Ownership to OWNER.

Within thirty (30) days following the OWNER's approval of the amount of the Progress Payment, the CONTRACTOR shall submit CONTRACTOR's partial or final waiver of lien.

The CONTRACTOR shall be paid no later than thirty (30) days following the OWNER's approval of the amount of the Progress Payment provided all the documentation required to be submitted has been submitted in proper form.

5. Withholding

Notwithstanding the foregoing and without prejudice to any of its other rights or remedies, the OWNER shall have the right at any time or times to withhold from any payment that may be or become due under the terms of Subsection 14.02 A 4 such amount as may reasonably appear necessary to compensate the OWNER for any actual or prospective loss due to Work that is defective or does not conform to the Contract Documents; damage for which the CONTRACTOR is liable hereunder; state or local sales, use or excise taxes that may have been paid by CONTRACTOR or any of its Subcontractors; liens or claims of lien regardless of merit; claims of third parties, Subcontractors or materialmen regardless of merit; inability of the CONTRACTOR to complete the performance of the Work; or any other failure of the CONTRACTOR to perform any of its obligations under the Contract. The OWNER shall be entitled to retain any and all amounts so withheld until the CONTRACTOR shall have either performed the obligation in question or furnished security for such performance satisfactory to the OWNER; provided, however, that nothing herein shall be construed to require the OWNER to release any funds being held by it pursuant to subsection 14.02 A 6 below.

6. Deductions

The OWNER shall have the right to charge to the CONTRACTOR and may deduct from the progress and final payments for the Work a charge for ENGINEER's engineering and inspection in connection with any overtime

Work.

Overtime Work shall, for purposes of this provision mean any Work conducted beyond the regular eight (8) hour workday, and Work conducted beyond the Contract Completion Date.

For any such overtime during (and beyond) the time set forth in the Contract Agreement for commencement and completion of the Work, such charge shall be one hundred twenty dollars (\$120.00) for each hour of such Work times the number of ENGINEER's personnel reasonably required to be present during such Work.

7. Remedies for Avoidable Delays.
If (i) the Work called for under this Contract is not finished and completed by the CONTRACTOR, in accordance with all requirements, within the time specified for completion in the Contract Agreement, including extensions of time granted because of unavoidable delay, authorized Change Orders or suspensions of Work not due to the contractor's failure to perform according to the Contract Documents; or, (ii) if at any time prior to the expiration of said time it should appear to OWNER that CONTRACTOR will be unable to finish and complete said Work as aforesaid within said time, then in that event the OWNER may terminate this Contract, as provided in paragraph 15.03 of the General Conditions, or may, in the exercise of its sole and absolute discretion, permit CONTRACTOR to complete the Work but charge to CONTRACTOR and deduct from the final payment due for the Work, engineering and resident project representative expenses computed on the basis of a per diem charge of nine hundred sixty dollars (\$960.00) per 8 hour day until completion of the Work for each resident project representative, in addition to any damages caused by such delay or any liquidated damages provided for in the Contract Agreement. Notwithstanding an election made pursuant to this paragraph, the OWNER may thereafter terminate the Contract, as provided in paragraph 15.02 and 15.03 of the General Conditions, if OWNER is not adequately assured of prompt completion.

B. Review of Applications

1. ENGINEER will, within 10 days after receipt

of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application.

2. ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER's observations on the Site of the executed Work as an experienced and qualified design professional and on ENGINEER's review of the Application for Payment and the accompanying data and schedules, that to the best of ENGINEER's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
- b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon ~~Substantial Completion~~ completion of the Work, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.08, and to any other qualifications stated in the recommendation); and
- c. the conditions precedent to CONTRACTOR's being entitled to such payment appear to have been fulfilled in so far as it is ENGINEER's responsibility to observe the Work.

3. By recommending any such payment ENGINEER will not thereby be deemed to have represented that: (i) inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents; or (ii) that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or entitle OWNER to withhold payment to CONTRACTOR.

4. Neither ENGINEER's review of CONTRACTOR's Work for the purposes of recommending payments nor ENGINEER's recommendation of any payment, including final payment, will impose responsibility on ENGINEER to supervise, direct, or control the Work or for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs

incident thereto, or for CONTRACTOR's failure to comply with Laws and Regulations applicable to CONTRACTOR's performance of the Work. Additionally, said review or recommendation will not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes CONTRACTOR has used the moneys paid on account of the Contract Price, or to determine that title to any of the Work, materials, or equipment has passed to OWNER free and clear of any Liens.

5. ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER's opinion, it would be incorrect to make the representations to OWNER referred to in paragraph 14.02.B.2. ENGINEER may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Written Amendment or Change Orders;
- c. OWNER has been required to correct defective Work or complete Work in accordance with paragraph 13.09; or
- d. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in paragraph 15.02.A.

C. *Payment Becomes Due*

1. ~~Ten days after After~~ presentation of the Application for Payment to OWNER with ENGINEER's recommendation, the amount recommended will (subject to the provisions of paragraph 14.02.D) become due, and when due will be paid by OWNER to CONTRACTOR pursuant to the provisions of the local government Prompt Payment Act "50ILCS 505/1 ET SEQ".

D. *Reduction in Payment*

1. OWNER may refuse to make payment of the full amount recommended by ENGINEER because:
 - a. claims have been made against OWNER on account of CONTRACTOR's perfor-

mance or furnishing of the Work;

- b. Liens have been filed in connection with the Work, except where CONTRACTOR has delivered a specific Bond satisfactory to OWNER to secure the satisfaction and discharge of such Liens;
- c. there are other items entitling OWNER to a set-off against the amount recommended; or
- d. OWNER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.02.B.5.a through 14.02.B.5.c or paragraph 15.02.A.

2. If OWNER refuses to make payment of the full amount recommended by ENGINEER, OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action and promptly pay CONTRACTOR any amount remaining after deduction of the amount so withheld. OWNER shall promptly pay CONTRACTOR the amount so withheld, or any adjustment thereto agreed to by OWNER and CONTRACTOR, when CONTRACTOR corrects to OWNER's satisfaction the reasons for such action.

3. If it is subsequently determined that OWNER's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by paragraph 14.02.C.1.

14.03 CONTRACTOR's *Warranty of Title*

A. CONTRACTOR warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

B. No materials or supplies for the Work shall be purchased by CONTRACTOR or Subcontractor subject to any chattel mortgage or under a condition sale contract or other agreement by which an interest is retained by the seller. CONTRACTOR warrants that he has good title to all materials and supplies used by him in the Work, free from all liens, claims or encumbrances.

C. CONTRACTOR shall indemnify and save OWNER harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary,

incurred in the furtherance of the performance of this Contract. CONTRACTOR shall at OWNER's request, furnish satisfactory evidence that all obligations of the nature hereinbefore designated have been paid, discharged, or waived. If CONTRACTOR fails to do so, then OWNER may, after having served written notice on the said CONTRACTOR either pay unpaid bills, of which OWNER has written notice, direct, or withhold from CONTRACTOR's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to CONTRACTOR shall be resumed, in accordance with the terms of this Contract, but in no event shall the provisions of this sentence be construed to impose any obligations upon OWNER to either CONTRACTOR or his surety. In paying any unpaid bills of CONTRACTOR, OWNER shall be deemed the agent of CONTRACTOR and any payment so made by OWNER, shall be considered as payment made under the Contract by OWNER to CONTRACTOR and OWNER shall not be liable to CONTRACTOR for any such payment made in good faith.

D. Contractor agrees that all payments made by the Owner shall be applied to the payment or reimbursement of the costs with respect to which they were paid, and not to any pre-existing or unrelated debt between the Contractor and Owner or between the Contractor and any Subcontractors or Suppliers.

14.04 Substantial Completion

A. 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 (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Promptly thereafter, 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. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after

receipt of the tentative certificate during which to make written objection to ENGINEER as to any provisions of the certificate or attached list. If, after considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within 14 days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefor. If, after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said 14 days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform ENGINEER in writing prior to ENGINEER's issuing the definitive certificate of Substantial Completion, ENGINEER's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

B. OWNER shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

14.04 Preliminary Inspection.

A. When CONTRACTOR considers the entire Work ready for its intended use, CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is ready for inspection.

B. Within a reasonable time thereafter, OWNER, CONTRACTOR and ENGINEER shall make an inspection of the WORK to determine the status of completion. If ENGINEER or OWNER does not consider the Work to be complete, ENGINEER will notify CONTRACTOR in writing giving the reasons therefor and attaching a list of items ("punchlist") to be completed or corrected before final inspection.

1) If all Work is considered by the ENGINEER and OWNER to be complete after the preliminary inspection, final payment processing may proceed in accordance with paragraphs 14.06, 14.07, 14.08, and 14.09 hereinafter.

14.05 *Partial Utilization*

A. Use by OWNER at OWNER's option of any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which OWNER, ENGINEER, and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by OWNER for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following conditions.

1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and ENGINEER that such part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify OWNER and CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers that part of the Work to be substantially complete, the provisions of paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

2. No occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of paragraph 5.06 and 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will promptly make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this

inspection reveals that the Work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.06 *Final Inspection and Final Acceptance*

A. Notice of Completion. When the Work has been completed and is ready in all respects for acceptance by OWNER, CONTRACTOR shall notify ENGINEER, with a copy to OWNER, and request a final inspection ("Notice of Completion"). CONTRACTOR'S Notice of Completion shall be given sufficiently in advance of the Completion Date to allow for scheduling of the final inspection and for completion or correction before the Completion Date of any items identified by such inspection as being defective, damaged, flawed, unsuitable, nonconforming, incomplete, or otherwise not in full compliance with the requirements of this Contract ("Punch List Work"). Before giving its Notice of Completion, CONTRACTOR shall satisfy itself that the whole Work, and every part thereof, has been completed in full compliance with, and as required by or pursuant to, this Contract, that all defects, damage, flaws, and nonconformities have been corrected, and that the Work Site and adjacent areas are fully restored, clean, and in good order.

B. Punch List and Final Acceptance. The Work shall be finally accepted when, and only when, the whole and all parts thereof shall have been completed to the satisfaction of OWNER in full compliance with, and as required by or pursuant to, this Contract and the Work Site and adjacent areas shall have been fully restored, cleaned, and placed in good order and in at least the same condition as immediately prior to commencement of the Work. Upon receipt of CONTRACTOR'S Notice of Completion and at a time mutually agreeable to OWNER, ENGINEER, and CONTRACTOR, ENGINEER shall make a review of the Work and shall complete and correct all Punch List Work, if any, to be completed and corrected ("Punch List") and of the time, not later than the Completion Date, by which CONTRACTOR shall complete or correct all Punch List Work or, if the Work is complete in full compliance with, and as required by or pursuant to, this Contract and the Work Site and adjacent areas are fully restored, clean, and in good order and in at least the same condition as immediately prior to commencement of the Work, prepare and deliver to OWNER a written recommendation that the Work be

finally accepted. Following CONTRACTOR'S completion or correction of all Punch List Work, ENGINEER shall make another review of the Work and shall either prepare and deliver to Contractor another Punch List or, if the Work is complete in full compliance with, and as required by or pursuant to, this Contract and the Work Site and adjacent areas are fully restored, clean, and in good order and in at least the same condition as immediately prior to commencement of the Work, prepare and deliver to OWNER a written recommendation that the Work be finally accepted.

The failure of ENGINEER to list any item on a Punch List shall not relieve CONTRACTOR of its obligation to provide, perform and complete the Work in full compliance with, and as required by or pursuant to, this Contract.

Upon being satisfied that the Work and Work Site are ready for final acceptance pursuant to the requirements of this Contract, OWNER shall issue its written notice of final acceptance of the Work to CONTRACTOR ("Final Acceptance").

14.07 Final Payment

A. Application for Payment

1. After CONTRACTOR has, in the 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, marked-up record documents (as provided in paragraph 6.12), and other documents, CONTRACTOR may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.04.B.7; (ii) consent of the surety, if any, to final payment; and (iii) complete and legally effective releases or waivers (satisfactory to OWNER) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in paragraph 14.07.A.2 and as approved by

OWNER, CONTRACTOR may furnish receipts or releases in full and an affidavit of CONTRACTOR that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or OWNER's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

B. Review of Application and Acceptance

1. If, on the basis of ENGINEER's 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 Documents have been fulfilled, ENGINEER will, within ten days after receipt of the final Application for Payment, indicate in writing ENGINEER's recommendation of payment and present the Application for Payment to OWNER for payment. At the same time ENGINEER will also give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.09. Otherwise, ENGINEER will return the Application for Payment to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

1. **Thirty days after After** the presentation to OWNER of the Application for Payment and accompanying documentation, the amount recommended by ENGINEER will become due and, when due, will be paid by OWNER to CONTRACTOR **pursuant to the provisions of the local government Prompt Payment Act "50ILCS 505/1 ET SEQ".**

14.08 Final Completion Delayed

A. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed, and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and

recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 Waiver of Claims

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by OWNER against CONTRACTOR, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and
2. a waiver of all Claims by CONTRACTOR against OWNER other than those previously made in writing which are still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 OWNER May Suspend Work

A. At any time and without cause, OWNER may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if CONTRACTOR makes a Claim therefor as provided in paragraph 10.05.

15.02 OWNER May Terminate for Cause

A. The occurrence of any one or more of the following events will justify termination for cause:

1. CONTRACTOR's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.07 as adjusted from time to time pursuant to paragraph 6.04);
2. CONTRACTOR's disregard of Laws or Regulations of any public body having jurisdiction;
3. CONTRACTOR's disregard of the authority of ENGINEER; or
4. CONTRACTOR's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in paragraph 15.02.A occur, OWNER may, after giving CONTRACTOR (and the surety, if any) seven days written notice, terminate the services of CONTRACTOR, exclude CONTRACTOR from the Site, and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds 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) sustained by OWNER arising out of or relating to completing the Work, such excess will be paid to CONTRACTOR. If such claims, costs, losses, and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such claims, costs, losses, and damages incurred by OWNER will be reviewed by ENGINEER as to their reasonableness and, when so approved by ENGINEER, incorporated in a Change Order. When exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

C. Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any

rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.03 OWNER May Terminate For Convenience

A. Upon seven days written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy of OWNER, elect to terminate the Contract. In such case, CONTRACTOR shall be paid (without duplication of any items):

1. for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
2. for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
3. for 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) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
4. for reasonable expenses directly attributable to termination.

B. CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 CONTRACTOR May Stop Work or Terminate

A. If, through no act or fault of CONTRACTOR, the Work is suspended for more than 90 consecutive days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within 30 days after it is submitted, or OWNER fails for 30 days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days written notice to OWNER and ENGINEER, and provided OWNER or ENGINEER do not remedy such suspension or failure within that time, terminate the Contract and recover from OWNER

payment on the same terms as provided in paragraph 15.03. In lieu of terminating the Contract and without prejudice to any other right or remedy, if ENGINEER has failed to act on an Application for Payment within 30 days after it is submitted, or OWNER has failed for 30 days to pay CONTRACTOR any sum finally determined to be due, CONTRACTOR may, seven days after written notice to OWNER and ENGINEER, stop the Work until payment is made of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.04 are not intended to preclude CONTRACTOR from making a Claim under paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping the Work as permitted by this paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 Methods and Procedures

A. Dispute resolution methods and procedures, if any, shall be as set forth in the Supplementary Conditions. If no method and procedure has been set forth, and subject to the provisions of paragraphs 9.09 and 10.05, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

ARTICLE 17 - MISCELLANEOUS

17.01 Giving Notice

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

17.02 Computation of Times

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

parties hereto.

17.03 *Cumulative Remedies*

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

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Wage Rates*

A. Wage rates for the Work shall be not less than the current prevailing wages established for the Cook County area as determined by the U.S. Department of Labor under the Davis-Bacon and related Acts and as determined by the Department of Labor of the State of Illinois. Recent prevailing wages applicable to this project are attached hereto as Special Attachments 5 and 6 (Section 00820), and made a part of the General and Supplementary Conditions. The CONTRACTOR is advised that the prevailing wages are subject to revision and that the then current prevailing wages shall apply.

17.07 *Severability*

A. If any portion of the Contract Documents is invalid or unenforceable pursuant to applicable law, such portion shall be void in the jurisdiction where it is invalid or unenforceable, and the remainder of the Contract Documents shall remain binding upon the

SECTION 00820
SPECIAL ATTACHMENTS

The following Special Attachments to the Bid Form, Agreement and General and Supplementary Conditions are appended to this section.

- Special Attachment No. 1: References
- Special Attachment No. 2: Certification of Eligibility to Enter into Public Contracts
- Special Attachment No. 3: Tax Certification
- Special Attachment No. 4: Certification of Compliance with the Illinois Prevailing Wage Act
- Special Attachment No. 5: Davis-Bacon Wage Determinations for Cook County Prevailing Wage
- Special Attachment No. 6: Cook County Prevailing Wage for August 2007
- Special Attachment No. 7: Sexual Harassment Policy
- Special Attachment No. 8: Equal Employment Opportunity
- Special Attachment No. 9: Apprenticeship and Training Program Certification
- Special Attachment No. 10: EJCDC form No. 1910-8-E (1996), Application for Payment
- Special Attachment No. 11: Insurance Requirements

(NO TEXT FOR THIS PAGE)

SPECIAL ATTACHMENT NO. 1

REFERENCES

(Please type)

ORGANIZATION Hammond Sanitary District

ADDRESS 5143 Columbia Ave.

CITY, STATE, ZIP Hammond, IN 46320

PHONE NUMBER (219) 853-6558

CONTACT PERSON Rick Sutton

DATE OF PROJECT 2007 (On-Going)

ORGANIZATION The Dow Chemical Company

ADDRESS 12840 S. Pulaski Road

CITY, STATE, ZIP Alsip, IL 60803

PHONE NUMBER (708) 396-3019

CONTACT PERSON Rajesh Patel

DATE OF PROJECT On-Going

ORGANIZATION Wheaton Sanitary District

ADDRESS 1S649 Shaffner Road

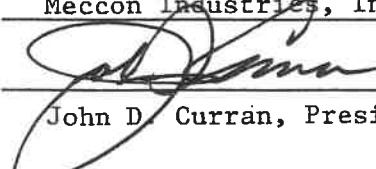
CITY, STATE, ZIP Wheaton, IL 60189

PHONE NUMBER (630) 668-1515

CONTACT PERSON Robert L. Clavel, P.E.

DATE OF PROJECT 2006 - 2007

Proposer's Name: Meccon Industries, Inc.

Signature: 

John D. Curran, President

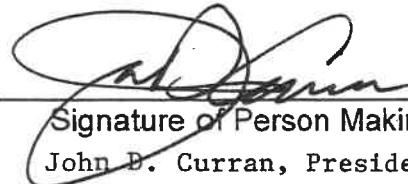
SPECIAL ATTACHMENT NO. 2

**CERTIFICATION OF ELIGIBILITY
TO ENTER INTO PUBLIC CONTRACTS**

IMPORTANT: **THIS CERTIFICATION MUST BE EXECUTED.**

I, John D. Curran, being first duly sworn certify
and say that I am President
(insert "sole owner," "partner," "president," or other proper title)

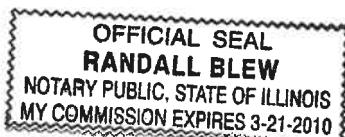
of Meccon Industries, Inc., the Prime
Contractor submitting this proposal, and that the Prime Contractor is not barred from
contracting with any unit of state or local government as a result of a violation of either Section
33E-3, or 33E-4 of the Illinois Criminal Code, or of any similar offense of "bid-rigging" or "bid-
rotating" of any state or of the United States.



Signature of Person Making Certification
John D. Curran, President

Subscribed and Sworn To
Before Me This 29th Day
of August, 2007.

Randall Blew
Notary Public



SPECIAL ATTACHMENT NO. 3

TAX CERTIFICATION

I, John D. Curran, having been first duly sworn depose and state as follows:

I, John D. Curran, am the duly authorized agent for Meccon Industries, Inc., which has submitted a proposal to the Village of Orland Park for

High Service Pump Upgrade and I hereby certify
(Name of Project)

that Meccon Industries, Inc. is not

delinquent in the payment of any tax administered by the Illinois Department of Revenue, or if it is:

- a. it is contesting its liability for the tax or the amount of tax in accordance with procedures established by the appropriate Revenue Act; or
- b. it has entered into an agreement with the Department of Revenue for payment of all taxes due and is currently in compliance with that agreement.

By: John D. Curran
Title: President

Subscribed and Sworn to
Before me this 29th
Day of August, 2007

Randall Blew

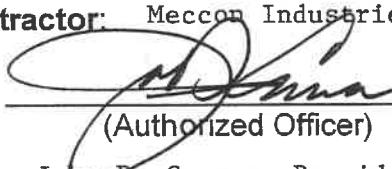


SPECIAL ATTACHMENT NO. 4

**CERTIFICATION OF COMPLIANCE WITH THE
ILLINOIS PREVAILING WAGE ACT
(820 ILCS 130/0.01, et seq.)**

It is hereby stipulated and certified to the Village of Orland Park, that the undersigned Contractor shall pay not less than the prevailing hourly rate of wages, the generally prevailing rate of hourly wages for legal holiday and overtime work, and the prevailing hourly rate for welfare and other benefits as determined by the Illinois Department of Labor and as set forth in the schedule of prevailing wages for this contract to all laborers, workers and mechanics performing work under this contract. The undersigned Contractor further stipulates and certifies that he/she/it has maintained a satisfactory record of Prevailing Wage Act compliance with no significant Prevailing Wage Act violations for the past three (3) years. In accordance with Public Act 94-0515, the Contractor will submit to the Village certified payroll records (to include for every worker employed on the project the name, address, telephone number, social security number, job classification, hourly wages paid in each pay period, number of hours worked each day and starting and ending time of work each day) on a monthly basis, along with a statement affirming that such records are true and accurate, that the wages paid to each worker are not less than the required prevailing rate and that the Contractor is aware that knowingly filing false records is a Class B Misdemeanor.

Contractor: Meccan Industries, Inc.

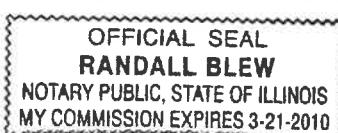
By: 

(Authorized Officer)

John D. Curran, President

Subscribed and Sworn to
before me this 29th day
of August, 2007

Randall Blew
Notary Public



SPECIAL ATTACHMENT NO. 5

GENERAL DECISION: **IL20070009** 07/06/2007 IL9

Date: July 6, 2007

General Decision Number: **IL20070009** 07/06/2007

Superseded General Decision Number: IL20030009

State: Illinois

Construction Types: Building, Heavy, Highway and Residential

County: Cook County in Illinois.

BUILDING, RESIDENTIAL, HEAVY, AND HIGHWAY PROJECTS (does not include landscape projects).

Modification Number	Publication Date
0	02/09/2007
1	03/09/2007
2	06/01/2007
3	07/06/2007

* ASBE0017-001 06/01/2007

	Rates	Fringes
Hazardous Material Handler includes preparation, wetting, stripping removal scrapping, vacuuming, bagging and disposal of all insulation materials, whether they contain asbestos or not, from mechanical systems.....	\$ 26.00	15.48
Insulator/asbestos worker Includes the application of all insulating materials, protective coverings, coatings, and finishes to all types of mechanical systems.....	\$ 37.15	19.18

BOIL0001-001 07/01/2004

	Rates	Fringes
BOILERMAKER.....	\$ 35.07	16.26

* BRIL0021-001 06/01/2007

	Rates	Fringes
Bricklayer.....	\$ 36.43	16.72

* BRIL0021-004 06/01/2007

	Rates	Fringes
Marble Mason.....\$ 36.43		16.72

BRIL0052-001 06/01/2006		
	Rates	Fringes
Pointer, cleaner and caulk.....\$ 35.65		13.00

CARP0555-001 06/01/2004		
	Rates	Fringes
Carpenter		
CARPENTERS, LATHERS, MILLWRIGHTS, PILEDRIVER, & SOFT FLOOR LAYERS.....\$ 34.32		10.93

CARP0555-002 10/01/2004		
	Rates	Fringes
Carpenter (Excluding structures with elevators and structures over 3 1/2 stories)....\$ 34.32		10.91

ELEC0009-003 05/31/2005		
	Rates	Fringes
Line Construction		
Equipment Operator.....\$ 34.95		14.07
Groundman.....\$ 27.26		14.07
Lineman.....\$ 34.95		14.07

ELEC0134-001 06/06/2005		
	Rates	Fringes
BUILDING CONSTRUCTION		
Electricians.....\$ 35.15		18.42

ELEC0134-002 04/01/1998		
	Rates	Fringes
Electrician ((CLASS B)) (Install magnetic or electronic replacement ballasts either singly or in groups including necessary wiring within fixture; Install replacement lamp holders and/or sockets including necessary wiring		

within fixture including
relocating sockets within
fixture; Install replacement
lighting circuit breakers
where necessary; Install
replacement lighting switches
where necessary; Repair
lighting fixtures other than
ballast or socket
replacements; Rewire
chandeliers or incandescent
fixtures only within fixtures
themselves.).....\$ 20.71 2.975+a+b

FOOTNOTES:

a-Paid Vacation- Employees who have been employed for one year but less than three years receive 1 week of paid vacation; employees who have been employed three years but less than ten years receive 2 weeks of paid vacation; Employees who have been employed ten years but less than twenty years receive 3 weeks of paid vacation; and employees who have worked twenty or more years receive 4 weeks of paid vacation.

b-Funeral Leave-In the instance of the death of a mother, other-in-law; father, father-in-law, sister, brother, husband, wife, or a child of an employee shall receive up to three days of paid funeral leave.

ELEC0134-003 06/07/2004

	Rates	Fringes
Electrician		
ELECTRICAL TECHNICIAN.....\$ 30.89		12.59
<p>The work shall consist of the installation, operation, inspection, maintenance, repair and service of radio, television, recording, voice sound vision production and reproduction, telephone and telephone interconnect, facsimile, data apparatus, coaxial, fibre optic and wireless equipment, appliances and systems used for the transmission and reception of signals of any nature, business, domestic, commercial, education, entertainment and residential purposes, including but not limited to communication and telephone, electronic and sound equipment, fibre optic and data communication systems, and the performance of any task directly related to such installation or service whether at new or existing sites, such tasks to include the placing of wire and cable and electrical power conduit or other raceway work within the equipment room and pulling wire and/or cable through conduit and the installation of any incidental conduit.</p>		

ELEV0002-003 07/03/2004

	Rates	Fringes
Elevator Mechanic.....	\$ 37.245	10.765+A+B

FOOTNOTES:

- A. Eight paid holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; Day after Thanksgiving; Veterans' Day and Christmas Day.
- B. Employer contributes 8% of regular basic hourly rate as vacation pay credit for employees with more than 5 years of service; and 6% for 6 months to 5 years of service.

* ENGI0150-006 06/01/2006

	Rates	Fringes
Power equipment operators:		
GROUP 1.....	\$ 41.55	15.05
GROUP 2.....	\$ 40.25	15.05
GROUP 3.....	\$ 37.70	15.05
GROUP 4.....	\$ 35.95	15.05

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Mechanic; Asphalt Plant*; Asphalt Spreader; Autograde*; Backhoes with Caisson attachment*:Batch Plant*; Benoto(Requires two Engineers); Boiler and Throttle Valve; Caisson Rigs*; Central Redi-Mix Plant*; Combination Backhoe Front Endloader Machine; Compressor and Throttle Valve; Concrete Breaker (Truck Mounted)*; Concrete Conveyor; Concrete Conveyor, Truck Mounted; Concrete Paver over 27E cu. ft.*; Concrete Paver 27E cu ft and Under*; Concrete Placer*; Concrete Placing Boom; Concrete Pump (Truck Mounted); Concrete Tower; Cranes*; Cranes, Hammerhead*; Cranes, (GCI and similar type Requires two operators only); Creter Crane; Crusher, Stone, etc; Derricks; Derricks, Traveling*; Formless Curb and Gutter Machine*; Grader, Elevating; Grouting Machines; Hightlift Shovels or Front Endloader 2 1/4 yd. and over; Hoists, Elevators, Outside Type Rack and pinion and similar Machines; Hoists, One, Two, and Three Drum; Hoists, Two Tugger One Floor; Hydraulic Backhoes*; Hydraulic Boom Trucks; Hydraulic Vac (and similar equipment);Locomotives; Motor Patrol*; Pile Drivers amd Skid Rig*; Post Hole Digger; Pre- Stress Machine; Pump Cretes Dual Ram(Requiring frequent Lubrication and Water); Pump Cretes; Squeeze Cretes-Screw Type Pumps Gypsum Bulker and Pump; Raised and Blind Hole Drill*; Roto Mill Grinder (36" and Over)*; Roto Mill Grinder (Less Than 36")*; Scoops-Tractor Drawn; Slip-Form Paver*; Straddle Buggies; Tournapull; Tractor with Boom, and Side Boom; and Trenching Machines*.

GROUP 2: Bobcat (over 3/4 cu yd); Boilers; Broom, Power Propelled; Bulldozers; Concrete Mixer (Two Bag and over); Conveyor, Portable; Forklift Trucks; Greaser Engineer;

Hightlift Shovels or Front End loaders under 2 1/4 cu yd; Automatic Hoists, Hoists, Inside Elevators; Hoists, Sewer Dragging Machine; Hoists, Tugger Single Drum; Laser Screed; Rock Drill (Self-Propelled); Rock Drill (Truck Mounted)*; Rollers; Steam Generators; Tractors; Tractor Drawn Vibratory Roller (Receives an additional \$.50 per hour); Winch Trucks with "A" Frame.

GROUP 3: Air Compressor-Small 250 and Under (1 to 5 not to exceed a total of 300 ft); Air Compressor-Large over 250; Combination-Small Equipment Operator; Generator- Small 50 kw and under; Generator-Large over 50 kw; Heaters, Mechanical; Hoists, Inside Elevators (Remodeling or Renovatin work); Hydrualic Power Units (Pile Driving, Extracting, and Drilling); Low Boys; Pumps Over 3" (1 To 3 not to exceed a total of 300 ft); Pumps, Well Points; Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches; Bobcat (up to and including 3/4 cu yd)

GROUP 4 - Bobcats and/or other Skid Steer Loaders; Brick Forklifts; Oilers

*-Requires Oiler

* ENGI0150-025 06/01/2006

	Rates	Fringes
Power equipment operators:		
GROUP 1.....	\$ 39.75	15.05
GROUP 2.....	\$ 39.20	15.05
GROUP 3.....	\$ 37.15	15.05
GROUP 4.....	\$ 35.75	15.05
GROUP 5.....	\$ 34.55	15.05

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt Plant*; Asphalt Heater and Planer combination; Asphalt Heater Scarfire*, Asphalt Spreader; Autograder/ GOMACO or similar; ABG Paver*, Backhoes with Caisson attachment*, Ballast Regulator,Belt Loader*;Caisson Rigs*Car Dumper, Central Redi-Mix Plant*,Combination Backhoe; Front End Loader Machine (1 cu yd or over Backhoe bucket or with attachments); Concrete Breaker (truck mounted);Concrete Conveyor; Concrete Paver over 27E cu ft*; Concrete Placer*; Concrete Tube Float; Cranes, all attachments*; Cranes, Hammerhead, Linden, Peco and machines of a like nature*; Creter Crane; Crusher, stone; All Derricks; Derrick Boats; Derricks, traveling*; Dowell Machine with Air Compressor (\$1.00 above Class 1); Dredges*; Field Mechanic Welder; Formless Curb and Gutter Machine*; Gradall and machines of a like nature*; Grader, Elevating; Grader, Motor Grader, Motor Patrol, Auto Patrol, Form Grader, Pull Grader, Subgrader; Guard Rail Post Driver mounted*; Hoists, one, two, and three Drum; Hydraulic Backhoes*; Backhoes with Shear attachments*; Mucking Machine; Pile Drivers and Skid Rig*; Pre-Stress Machine;

Pump Cretes Dual Ram (requires frequent lubrication and water)*; Rock Drill- Crawler or Skid Rig*; Rock Drill truck mounted*; Rock/ Track Tamper; Roto Mill Grinder, (36" and over)*; Slip-Form Paver*; Soil Test Drill Rig, truck mounted*; Straddle Buggies; Hydraulic Telescoping Form (tunnel); Tractor Drawn Belt Loader*; Tractor Drawn Belt Loader with attached Pusher(two engineers); Tractor with boom; Tractaire with attachment; Traffic Barrier Transfer Machine*; Trenching Machine; Truck Mounted Concrete Pump with boom*; Underground Boring and/or Mining Machines 5 ft in diameter and over tunnel, etc.*; Wheel Excavator* & Widener (Apsco); Raised or Blind Hoe Drill, Tunnel & Shaft*

GROUP 2: Batch Plant*; Bituminous Mixer; Boiler and Throttle Valve; Bulldozer; Car Loader Trailing Conveyors; Combination Backhoe Front End Loader Machine, (less than 1 cu yd Backhoe Bucket with attachments); Compressor and Throttle Valve; Compressor, common receiver (3); Concrete Breaker or Hydro Hammer; Concrete Grinding Machine; Concrete Mixer or Paver 7S series to and including 27 cu ft; Concrete Spreader; Concrete Curing Machine; Burlap Machine; Belting Machine and Sealing Machine; Concrete Wheel Saw; Conveyor Muck Cars (Haglund or similar type); Drills (all); Finishing Machine-Concrete; Greaser Engineer; Highlift Shovels or Front End Loader; Hoist- Sewer Dragging Machine; Hydraulic Boom Trucks, all attachments; Hydro-Blaster (requires two operators); Laser Screed*; Locomotives, Dinky; Off-Road Hauling Units (including articulating); Pump Cretes; Squeeze Cretes-Screw Type pumps, Gypsum Bulker and Pump; Roller Asphalt; Rotary Snow Plows; Rototiller, Seaman, self-Propelled; Scoops-Tractor Drawn; Self- propelled Compactor; Spreader-Chip-Stone; Scraper; Scraper-Prime Mover in Tandem regardless of size (add \$1.00 to Group 2 hourly rate for each hour and for each machine attached thereto add \$1.00 to Group 2 hourly rate for each hour); Tank Car Heater; Tractors, Push, pulling Sheeps Foot, Disc, or Compactor, etc; Tug Boats

GROUP 3: Boilers; Brooms, all power propelled; Cement Supply Tender; Compressor, Common Receiver (2); Concrete Mixer, two bag and over; Conveyor, Portable; Farm type Tractors used for mowing, seeding, etc; Fireman on Boilers; Forklift Trucks; Grouting Machines; Hoists, Automatic; Hoists, all Elevators; Hoists, Tugger single Drum; Jeep Diggers; Low Boys; Pipe Jacking Machines; Post-hole Digger; Power Saw, Concrete, Power Driven; Pug Mills; Rollers, other than asphalt; Seed and Straw Blower; Steam Generators; Stump Machine; Winch Trucks with A-Frame; Work Boats; Tamper-Form motor driven

GROUP 4: Air compressor - Small 250 and under (1 to 5 not to exceed a total of 300 ft); Air Compressor - Large over 250; Combination - Small Equipment Operator; Directional Boring Machine; Generators - Small 50 kw and under; Generators - Large , over 50 kw; Heaters, Mechanical; Hydraulic power unit (Pile Driving, Extracting or Drilling); Light Plants (1 to 5); Pumps, over 3" (1 to 3, not to exceed a total of

300 ft); Pumps, Well Points; Tractaire; Welding Machines (2 through 5); Winches, 4 small electric drill winches;

GROUP 5: Bobcats (All); Brick Forklifts; Oilers; Directional Boring

*-Requires Oiler

* IRON0001-026 07/01/2007

	Rates	Fringes
Ironworker (Structural and Reinforcing).....	\$ 37.57	16.99

IRON0063-001 06/01/2004

	Rates	Fringes
Ironworker, Ornamental.....	\$ 32.30	17.09

IRON0063-002 01/01/2003

	Rates	Fringes
Ironworker		
FENCE ERECTORS.....	\$ 29.83	14.89
METAL FENCE ERECTORS.....	\$ 22.54	12.04

IRON0136-001 07/01/2002

	Rates	Fringes
Ironworker		
Machinery Movers & Riggers..	\$ 23.65	17.42
Master Riggers.....	\$ 25.40	17.42

LABO0002-006 06/01/2004

	Rates	Fringes
Laborers:		
LABORERS (BUILDING & RESIDENTIAL):		
GROUP 1.....	\$ 29.00	9.97
GROUP 2.....	\$ 28.90	9.97
GROUP 3.....	\$ 29.075	9.97
GROUP 4.....	\$ 29.10	9.97
GROUP 5.....	\$ 29.15	9.97
GROUP 6.....	\$ 29.20	9.97
GROUP 7.....	\$ 29.225	9.97
GROUP 8.....	\$ 29.325	9.97
GROUP 9.....	\$ 29.35	9.97
GROUP 10.....	\$ 29.45	9.97
GROUP 11.....	\$ 29.575	9.97
GROUP 12.....	\$ 29.65	9.97

LABORERS CLASSIFICATIONS (BUILDING & RESIDENTIAL)

GROUP 1: Building Laborers; Plasterer Tenders; Pumps for Dewatering; and other unclassified laborers.

GROUP 2: Fireproofing and Fire Shop laborers.

GROUP 3: Cement Gun.

GROUP 4: Chimney over 40 ft.; Scaffold Laborers.

GROUP 5: Cement Gun Nozzle Laborers (Gunite); Windlass and capstan person.

GROUP 6: Stone Derrickmen & Handlers.

GROUP 7: Jackhammermen; Power driven concrete saws; and other power tools.

GROUP 8: Firebrick & Boiler Laborers.

GROUP 9: Chimney on fire brick; Caisson diggers; & Well Point System men.

GROUP 10: Boiler Setter Plastic Laborers.

GROUP 11: Jackhammermen on fire brick work only.

GROUP 12: Dosimeter use (any device) monitoring nuclear exposure); Asbestos Abatement Laborer; Toxic and Hazardous Waste Removal Laborers.

LABO0002-007 06/01/2004

Rates	Fringes
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Laborers:

LABORERS (HEAVY AND HIGHWAY):

GROUP 1.....	\$ 29.00	9.97
GROUP 2.....	\$ 29.075	9.97
GROUP 3.....	\$ 29.15	9.97
GROUP 4.....	\$ 29.275	9.97
GROUP 5.....	\$ 29.655	9.97

LABORERS CLASSIFICATIONS

GROUP 1: Common laborer; Tenders; Material expeditor (asphalt plant); Street paving, Grade separation, sidewalk, curb & gutter, strippers & All laborers not otherwise mentioned

GROUP 2: Ashpalt tampers & smoothers; Cement gun laborers

GROUP 3: Cement Gun Nozzle (laborers)
Gunite

GROUP 4: Rakers, Lutemen; Machine-Screwmen; Kettlemen; Mixermen; Drun-men; Jackhammermen (asphalt); Paintmen; Mitre box spreaders; Laborers on birch, overman and similar spreader equipment; Laborers on APSCO; Laborers on air compressor; Paving Form Setter; Jackhammermen (concrete); Power drive concrete saws; other power tools.

GROUP 5: Asbestos Abatement Laborers; Toxic and Hazardous Waste Removal Laborers, Dosimeter (any device) monitoring nuclear exposure

LABO0002-008 06/01/2002

	Rates	Fringes
Laborers: (COMPRESSED AIR)		
0 - 15 POUNDS.....	\$ 29.00	6.67
16 - 20 POUNDS.....	\$ 30.50	6.67
21 - 26 POUNDS.....	\$ 31.00	6.67
27 - 33 POUNDS.....	\$ 32.00	6.67
34 - AND OVER.....	\$ 33.00	6.67

LABORERS CLASSIFICATIONS (TUNNEL)

GROUP 1: Cage tenders; Dumpmen; Flagmen; Signalmen; Top laborers.

GROUP 2: Air hoist operator; Key board operator; concrete laborer; Grout; Lock tenders (Free Air Side); Steel setters; Tuggers; Switchmen; Car pusher

GROUP 3: Concrete repairmen; Lock tenders (pressure side); Mortar men; Muckers; Grout machine operators; Track layers

GROUP 4: Air trac drill operator; Miner; Bricklayer tenders; Concrete blower operator; Drillers; Dynamiters; Erector operator; Form men; Jackhammermen; Powerpac; Mining machine operators; Mucking machine operator; Laser beam operator; Liner plate and ring setters; Shield drivers; Power knife operator; Welder- burners; Pipe jacking machine operator; skinners; Maintenance technician.

GROUP 5: Asbestos abatement laborer; Toxic and hazardous waste removal laborer; Dosimeter (any device) monitoring nuclear exposure.

LABORERS CLASSIFICATIONS (SEWER)

GROUP 1: Signalmen; Top laborers and All other laborers

GROUP 2: Concrete laborers and Steel setters

GROUP 3: Cement carriers; Cement mixers; Concrete repairmen; Mortar men; Scaffold men; Second Bottom men

GROUP 4: Air trac drill operator; Bottom men; Bracers-bracing; Bricklayer tenders; Catch basin diggers;

Drainlayers; dynamiters; Form men; Jackhammermen; Powerpac; Pipelayers; Rodders; Welder-burners; Well point systems men

GROUP 5: Asbestos abatement laborer, Toxic and hazardous waste removal laborer; Dosimeter (any device) monitoring nuclear exposure

LABO0225-001 06/01/2002

Rates	Fringes
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Laborers:

(DEMOLITION/WRECKING)

TOTAL DEMOLITION or
dismantling of buildings
and all structures in
their entirety

Burners, Wallmen, Power
Tool and Equipment

Operator.....\$ 22.70	6.67
Total Demolition Laborer...\$ 22.20	6.67

MARB0025-001 06/01/2006

Rates	Fringes
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Tile Finisher.....\$ 28.52	11.51
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MARB0067-001 06/01/2006

Rates	Fringes
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Tile Setter.....\$ 34.60	12.84
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MARB0067-002 06/01/2006

Rates	Fringes
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Terrazzo Worker.....\$ 33.65	14.39
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MARB0087-001 06/01/2006

Rates	Fringes
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Marble Finisher.....\$ 26.73	14.86
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* PAIN0014-001 06/01/2007

Rates	Fringes
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Painter

Drywall Taper.....\$ 34.40	14.49
Painter, Brush, Decorator, and Paperhanger.....\$ 34.40	14.52

* PAIN0014-004 06/01/2007

	Rates	Fringes
Painter, Brush.....	\$ 34.40	14.52

PAIN0027-001 06/01/2006		
	Rates	Fringes
Glazier.....	\$ 33.00	17.49

PLAS0005-002 06/01/2006		
	Rates	Fringes
Plasterer.....	\$ 33.85	14.65

* PLAS0502-001 06/01/2007		
	Rates	Fringes
Cement Mason.....	\$ 39.85	14.18

PLUM0130-001 06/01/2006		
	Rates	Fringes
Plumber.....	\$ 39.70	13.72

* PLUM0597-002 06/01/2007		
	Rates	Fringes
Pipefitter.....	\$ 40.00	17.33

ROOF0011-001 12/01/2006		
	Rates	Fringes
Roofer.....	\$ 33.65	10.10

SFIL0281-001 01/01/2007		
	Rates	Fringes
Sprinkler Fitter.....	\$ 38.50	14.91

SHEE0073-001 01/01/2007		
	Rates	Fringes
Sheet Metal Worker.....	\$ 36.96	17.42

SHEE0073-002 01/01/2007		
	Rates	Fringes
Sheet Metal Worker		

ALUMINUM GUTTER WORK.....\$ 24.03

17.42

TEAM0731-001 06/01/2004

	Rates	Fringes
Truck Driver		
2 & 3 Axles.....	\$ 28.05	7.81 +A+B
4 Axles.....	\$ 28.30	7.81 +A+B
5 Axles.....	\$ 28.50	7.81 +A+B
6 Axles.....	\$ 28.70	7.81 +A+B

FOOTNOTES FOR TRUCK DRIVERS (HEAVY & HIGHWAY):

A. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

B. 900 straight time hours or more in 1 calendar year for the same employer shall receive 1 week paid vacation; 3 years - 2 weeks paid vacation; 10 years - 3 weeks paid vacation; 20 years - 4 weeks paid vacation.

TEAM0731-002 06/01/2002

	Rates	Fringes
Truck Driver (DEMOLITION)		
2 OR 3 Axles.....	\$ 25.90	7.00
4 Axles.....	\$ 26.15	7.00
5 Axles.....	\$ 26.35	7.00
6 Axles.....	\$ 26.55	7.00

TEAM0731-003 05/01/1997

	Rates	Fringes
Traffic Control Device Monitor		
TRAFFIC SAFETY WORKERS:		
Traffic Safety Worker		
primary duties include but		
are not limited to the		
delivery, maintenance and		
pick-up of traffic control		
devices, the set-up and		
installation of traffic		
signs, pavement markings,		
barricades, crash barrels		
and glare screens, and		
traffic control		
surveillance, the repair		
and maintenance of the		
company's trucks, cars,		
arrow boards, message		
signs, barricade and sign		
fabrication equipment.....	\$ 16.15	108.75/wk+a

FOOTNOTE a:

1. The following paid holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; and Christmas Day provided the employee has earned a vacation the previous year or have worked thirty-one days in the current year before the holiday, or have seniority as stated herein; work the scheduled work day before and the scheduled day after the holiday; work one day in the holiday week; and work one scheduled work day after the holiday.
2. Paid vacation is earned the first year of employment, but may not be taken until after their first anniversary date. One and two years of employment receive 40 hours of paid vacation; Three thru nine years of employment receive 80 hours of paid vacation; Ten thru nineteen years of employment receive 120 hours of paid vacation; and Twenty years and over receive 160 hours of paid vacation.
3. Personal time (floating holidays) will be earned on a per hour worked basis. New employees will earn personal time during the first year of employment, but may not be take personal time until after their first anniversary date. Personal time is earned in the following way: One and two years receive 8 hours of personal time; Three thru nine years receive sixteen hours of personal time; and ten years and over receive twenty-four hours of personal time.

TEAM0786-001 06/01/2004

	Rates	Fringes
Truck Driver		
2 & 3 Axles.....	\$ 27.625	d, e, f
4 Axles.....	\$ 27.875	d, e, f
5 Axles.....	\$ 28.075	d, e, f
6 Axles.....	\$ 28.625	d, e, f

FOOTNOTES FOR TRUCK DRIVERS (BUILDING & RESIDENTIAL):

- d. \$327.00 per week.
- e. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.
- f. 900 straight time hours or more in 1 calendar year for the same employer shall receive 1 week paid vacation; 3 years - 2 weeks paid vacation; 10 years - 3 weeks paid vacation; 20 years - 4 weeks paid vacation.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material,

etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

SPECIAL ATTACHMENT NO. 6

Cook County Prevailing Wage for August 2007

Trade Name	RG	TYP	C	Base	FRMAN	*M-F>8	OSA	OSH	H/W	Pensn	Vac	Trng
ASBESTOS ABT-GEN		ALL		33.150	33.650	1.5	1.5	2.0	7.970	5.680	0.000	0.220
ASBESTOS ABT-MEC		BLD		23.300	24.800	1.5	1.5	2.0	7.860	4.910	0.000	0.000
BOILERMAKER		BLD		38.540	42.000	2.0	2.0	2.0	6.720	7.440	0.000	0.300
BRICK MASON		BLD		36.430	40.070	1.5	1.5	2.0	7.700	8.770	0.000	0.440
CARPENTER		ALL		37.770	39.770	1.5	1.5	2.0	8.960	6.910	0.000	0.490
CEMENT MASON		ALL		39.850	41.850	2.0	1.5	2.0	7.490	6.520	0.000	0.170
CERAMIC TILE FNSHR		BLD		28.520	0.000	2.0	1.5	2.0	5.650	5.750	0.000	0.330
COMM. ELECT.		BLD		33.940	36.440	1.5	1.5	2.0	7.200	5.590	0.000	0.700
ELECTRIC PWR EQMT OP		ALL		37.300	43.450	1.5	1.5	2.0	8.310	10.77	0.000	0.280
ELECTRIC PWR GRNDMAN		ALL		29.090	43.450	1.5	1.5	2.0	6.450	8.390	0.000	0.220
ELECTRIC PWR LINEMAN		ALL		37.300	43.450	1.5	1.5	2.0	8.310	10.77	0.000	0.280
ELECTRICIAN		ALL		37.800	40.400	1.5	1.5	2.0	10.00	7.650	0.000	0.750
ELEVATOR CONSTRUCTOR		BLD		42.045	47.300	2.0	2.0	2.0	8.275	6.060	2.520	0.550
FENCE ERECTOR		ALL		28.640	30.140	1.5	1.5	2.0	7.750	5.970	0.000	0.350
GLAZIER		BLD		33.000	34.500	1.5	2.0	2.0	6.740	10.15	0.000	0.600
HT/FROST INSULATOR		BLD		33.300	35.050	1.5	1.5	2.0	7.860	8.610	0.000	0.310
IRON WORKER		ALL		39.250	41.250	2.0	2.0	2.0	9.950	12.74	0.000	0.300
LABORER		ALL		33.150	33.900	1.5	1.5	2.0	7.970	5.680	0.000	0.220
LATHER		BLD		37.770	39.770	1.5	1.5	2.0	8.960	6.910	0.000	0.490
MACHINIST		BLD		38.390	40.390	2.0	2.0	2.0	4.880	6.550	2.650	0.000
MARBLE FINISHERS		ALL		27.680	0.000	1.5	1.5	2.0	7.520	8.770	0.000	0.440
MARBLE MASON		BLD		36.430	40.070	1.5	1.5	2.0	7.700	8.770	0.000	0.440
MATERIAL TESTER I		ALL		23.150	0.000	1.5	1.5	2.0	7.970	5.680	0.000	0.220
MATERIALS TESTER II		ALL		28.150	0.000	1.5	1.5	2.0	7.970	5.680	0.000	0.220
MILLWRIGHT		ALL		37.770	39.770	1.5	1.5	2.0	8.960	6.910	0.000	0.490
OPERATING ENGINEER	BLD 1	41.550		45.550	2.0		2.0	2.0	6.850	5.600	1.900	0.700
OPERATING ENGINEER	BLD 2	40.250		45.550	2.0		2.0	2.0	6.850	5.600	1.900	0.700
OPERATING ENGINEER	BLD 3	37.700		45.550	2.0		2.0	2.0	6.850	5.600	1.900	0.700
OPERATING ENGINEER	BLD 4	35.950		45.550	2.0		2.0	2.0	6.850	5.600	1.900	0.700
OPERATING ENGINEER	FLT 1	47.250		47.250	1.5		1.5	2.0	6.850	5.600	1.900	0.000
OPERATING ENGINEER	FLT 2	45.750		47.250	1.5		1.5	2.0	6.850	5.600	1.900	0.000
OPERATING ENGINEER	FLT 3	40.700		47.250	1.5		1.5	2.0	6.850	5.600	1.900	0.000
OPERATING ENGINEER	FLT 4	33.850		47.250	1.5		1.5	2.0	6.850	5.600	1.900	0.000
OPERATING ENGINEER	HWY 1	39.750		43.750	1.5		1.5	2.0	6.850	5.600	1.900	0.700
OPERATING ENGINEER	HWY 2	39.200		43.750	1.5		1.5	2.0	6.850	5.600	1.900	0.700
OPERATING ENGINEER	HWY 3	37.150		43.750	1.5		1.5	2.0	6.850	5.600	1.900	0.700
OPERATING ENGINEER	HWY 4	35.750		43.750	1.5		1.5	2.0	6.850	5.600	1.900	0.700
OPERATING ENGINEER	HWY 5	34.550		43.750	1.5		1.5	2.0	6.850	5.600	1.900	0.700
ORNAMNTL IRON WORKER	ALL	37.350		39.600	2.0		2.0	2.0	7.750	11.58	0.000	0.500
PAINTER	ALL	35.400		39.820	1.5		1.5	1.5	6.550	7.400	0.000	0.420
PAINTER SIGNS	BLD	28.970		32.520	1.5		1.5	1.5	2.600	2.310	0.000	0.000
PILEDRIVER	ALL	37.770		39.770	1.5		1.5	2.0	8.960	6.910	0.000	0.490
PIPEFITTER	BLD	40.000		42.000	1.5		1.5	2.0	8.660	7.550	0.000	1.120
PLASTERER	BLD	33.850		35.350	1.5		1.5	2.0	6.740	7.100	0.000	0.400
PLUMBER	BLD	39.700		41.700	1.5		1.5	2.0	8.170	4.560	0.000	0.940
ROOFER	BLD	33.650		35.650	1.5		1.5	2.0	6.460	3.310	0.000	0.330
SHEETMETAL WORKER	BLD	33.400		36.070	1.5		1.5	2.0	6.460	7.850	0.000	0.590
SIGN HANGER	BLD	25.340		26.190	1.5		1.5	2.0	4.180	2.250	0.000	0.000
SPRINKLER FITTER	BLD	40.500		42.500	1.5		1.5	2.0	8.500	6.850	0.000	0.500
STEEL ERECTOR	ALL	36.250		37.750	2.0		2.0	2.0	8.970	10.77	0.000	0.300
STONE MASON	BLD	36.430		40.070	1.5		1.5	2.0	7.700	8.770	0.000	0.440
TERRAZZO FINISHER	BLD	29.290		0.000	1.5		1.5	2.0	5.650	6.940	0.000	0.270

TERRAZZO MASON	BLD	35.390	38.390	1.5	1.5	2.0	5.850	10.05	0.000	0.320
TILE MASON	BLD	34.600	38.600	2.0	1.5	2.0	5.650	7.000	0.000	0.460
TRAFFIC SAFETY WRKR	HWY	24.300	25.900	1.5	1.5	2.0	3.780	1.875	0.000	0.000
TRUCK DRIVER	E ALL 1	29.950	30.600	1.5	1.5	2.0	6.150	4.800	0.000	0.150
TRUCK DRIVER	E ALL 2	30.200	30.600	1.5	1.5	2.0	6.150	4.800	0.000	0.150
TRUCK DRIVER	E ALL 3	30.400	30.600	1.5	1.5	2.0	6.150	4.800	0.000	0.150
TRUCK DRIVER	E ALL 4	30.600	30.600	1.5	1.5	2.0	6.150	4.800	0.000	0.150
TRUCK DRIVER	W ALL 1	29.700	30.250	1.5	1.5	2.0	6.500	3.400	0.000	0.000
TRUCK DRIVER	W ALL 2	29.850	30.250	1.5	1.5	2.0	6.500	3.400	0.000	0.000
TRUCK DRIVER	W ALL 3	30.050	30.250	1.5	1.5	2.0	6.500	3.400	0.000	0.000
TRUCK DRIVER	W ALL 4	30.250	30.250	1.5	1.5	2.0	6.500	3.400	0.000	0.000
TUCKPOINTER	BLD	36.900	37.900	1.5	1.5	2.0	5.910	8.350	0.000	0.400

Legend:

M-F>8 (Overtime is required for any hour greater than 8 worked each day, Monday through Friday.)

OSA (Overtime is required for every hour worked on Saturday)

OSH (Overtime is required for every hour worked on Sunday and Holidays)

H/W (Health & Welfare Insurance)

Pensn (Pension)

Vac (Vacation)

Trng (Training)

Explanations

COOK COUNTY

TRUCK DRIVERS (WEST) - That part of the county West of Barrington Road.

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial/Decoration Day, Fourth of July, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. Generally, any of these holidays which fall on a Sunday is celebrated on the following Monday. This then makes work performed on that Monday payable at the appropriate overtime rate for holiday pay. Common practice in a given local may alter certain days of celebration such as the day after Thanksgiving for Veterans Day. If in doubt, please check with IDOL.

EXPLANATION OF CLASSES

ASBESTOS - GENERAL - removal of asbestos material/mold and hazardous materials from any place in a building, including mechanical systems where those mechanical systems are to be removed. This includes the

removal of asbestos materials/mold and hazardous materials from ductwork or pipes in a building when the building is to be demolished at the time or at some close future date.

ASBESTOS - MECHANICAL - removal of asbestos material from mechanical systems, such as pipes, ducts, and boilers, where the mechanical systems are to remain.

CERAMIC TILE FINISHER

The grouting, cleaning, and polishing of all classes of tile, whether for interior or exterior purposes, all burned, glazed or unglazed products; all composition materials, granite tiles, warning detectable tiles, cement tiles, epoxy composite materials, pavers, glass, mosaics, fiberglass, and all substitute materials, for tile made in tile-like units; all mixtures in tile like form of cement, metals, and other materials that are for and intended for use as a finished floor surface, stair treads, promenade roofs, walks, walls, ceilings, swimming pools, and all other places where tile is to form a finished interior or exterior. The mixing of all setting mortars including but not limited to thin-set mortars, epoxies, wall mud, and any other sand and cement mixtures or adhesives when used in the preparation, installation, repair, or maintenance of tile and/or similar materials. The handling and unloading of all sand, cement, lime, tile, fixtures, equipment, adhesives, or any other materials to be used in the preparation, installation, repair, or maintenance of tile and/or similar materials. Ceramic Tile Finishers shall fill all joints and voids regardless of method on all tile work, particularly and especially after installation of said tile work. Application of any and all protective coverings to all types of tile installations including, but not be limited to, all soap compounds, paper products, tapes, and all polyethylene coverings, plywood, masonite, cardboard, and any new type of products that may be used to protect tile installations, Blastrac equipment, and all floor scarifying equipment used in preparing floors to receive tile. The clean up and removal of all waste and materials. All demolition of existing tile floors and walls to be re-tiled.

COMMUNICATIONS ELECTRICIAN - Installation, operation, inspection, maintenance, repair and service of radio, television, recording, voice sound vision production and reproduction, telephone and telephone interconnect, facsimile, data apparatus, coaxial, fibre optic and wireless equipment, appliances and systems used for the transmission and reception of signals of any nature, business, domestic, commercial, education, entertainment, and residential purposes, including but not limited to, communication and telephone, electronic and sound equipment, fibre optic and data communication systems, and the performance of any task directly related to such installation or service whether at new or existing sites, such tasks to include the placing of wire and cable and electrical power conduit or other raceway work within the equipment room and pulling wire and/or cable through conduit and the installation of any incidental conduit, such that the employees covered hereby can complete any job in full.

MARBLE FINISHER

Loading and unloading trucks, distribution of all materials (all stone, sand, etc.), stocking of floors with material, performing all

rigging for heavy work, the handling of all material that may be needed for the installation of such materials, building of scaffolding, polishing if needed, patching, waxing of material if damaged, pointing up, caulking, grouting and cleaning of marble, holding water on diamond or Carborundum blade or saw for setters cutting, use of tub saw or any other saw needed for preparation of material, drilling of holes for wires that anchor material set by setters, mixing up of molding plaster for installation of material, mixing up thin set for the installation of material, mixing up of sand to cement for the installation of material and such other work as may be required in helping a Marble Setter in the handling of all material in the erection or installation of interior marble, slate, travertine, art marble, serpentine, alberene stone, blue stone, granite and other stones (meaning as to stone any foreign or domestic materials as are specified and used in building interiors and exteriors and customarily known as stone in the trade), carrara, santonyx, vitrolite and similar opaque glass and the laying of all marble tile, terrazzo tile, slate tile and precast tile, steps, risers treads, base, or any other materials that may be used as substitutes for any of the aforementioned materials and which are used on interior and exterior which are installed in a similar manner.

MATERIAL TESTER I: Hand coring and drilling for testing of materials; field inspection of uncured concrete and asphalt.

MATERIAL TESTER II: Field inspection of welds, structural steel, fireproofing, masonry, soil, facade, reinforcing steel, formwork, cured concrete, and concrete and asphalt batch plants; adjusting proportions of bituminous mixtures.

TERRAZZO FINISHER

The handling of sand, cement, marble chips, and all other materials that may be used by the Mosaic Terrazzo Mechanic, and the mixing, grinding, grouting, cleaning and sealing of all Marble, Mosaic, and Terrazzo work, floors, base, stairs, and wainscoting by hand or machine, and in addition, assisting and aiding Marble, Masonic, and Terrazzo Mechanics.

OPERATING ENGINEERS - BUILDING

Class 1. Mechanic; Asphalt Plant; Asphalt Spreader; Autograde; Backhoes with Caisson attachment; Batch Plant; Benoto; Boiler and Throttle Valve; Caisson Rigs; Central Redi-Mix Plant; Combination Back Hoe Front End-loader Machine; Compressor and Throttle Valve; Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Paver; Concrete Placer; Concrete Placing Boom; Concrete Pump (Truck Mounted); Concrete Tower; Cranes, All; Cranes, Hammerhead; Cranes, (GCI and similar Type); Creter Crane; Crusher, Stone, etc.; Derricks, All; Derricks, Traveling; Formless Curb and Gutter Machine; Grader, Elevating; Grouting Machines; Highlift Shovels or Front Endloader 2-1/4 yd. and over; Hoists, Elevators, outside type rack and pinion and similar machines; Hoists, one, two and three Drum; Hoists, Two Tugger One Floor; Hydraulic Backhoes; Hydraulic Boom Trucks; Hydro Vac (and similar equipment); Locomotives, All; Motor Patrol; Pile Drivers and Skid Rig; Post Hole Digger; Pre-Stress Machine; Pump Cretes Dual Ram; Pump Cretes; Squeeze Cretes-screw Type Pumps; Raised

and Blind Hole Drill; Roto Mill Grinder; Scoops - Tractor Drawn; Slip-form Paver; Straddle Buggies; Tournapull; Tractor with Boom and Side Boom; Trenching Machines.

Class 2. Boilers; Broom, All Power Propelled; Bulldozers; Concrete Mixer (Two Bag and Over); Conveyor, Portable; Forklift Trucks; Greaser Engineer; Highlift Shovels or Front Endloaders under 2-1/4 yd.; Hoists, Automatic; Hoists, inside Freight Elevators; Hoists, Sewer Dragging Machine; Hoists, Tugger Single Drum; Laser Screed; Rock Drill self-propelled); Rock Drill (truck mounted); Rollers, All; Steam Generators; Tractors, All; Tractor Drawn Vibratory Roller; Winch Trucks with "A" Frame.

Class 3. Air Compressor; Combination - Small Equipment Operator; Generators; Heaters, Mechanical; Hoists, Inside Elevators - (Rheostat Manual Controlled); Hydraulic Power Units (Pile Driving, Extracting, and Drilling); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Pumps, Well Points; Welding Machines (2 through 5); Winches, 4 small Electric Drill Winches; Bobcat (up to and including 3/4 cu. yd.).

Class 4. Bobcats and/or other Skid Steer Loaders; Oilers; and Brick Forklift.

OPERATING ENGINEERS - FLOATING

Class 1. Craft foreman (Master Mechanic), diver/wet tender, engineer (hydraulic dredge).

Class 2. Crane/backhoe operator, mechanic/welder, assistant engineer (hydraulic dredge), leverman (hydraulic dredge), and diver tender.

Class 3. Deck equipment operator (machineryman), maintenance of crane (over 50 ton capacity) or backhoe (96,000 pounds or more), tug/launch operator, loader, dozer and like equipment on barge, breakwater wall, slip/dock or scow, deck machinery, etc.

Class 4. Deck equipment operator machineryman/fireman), (4 equipment units or more) and crane maintenance 50 ton capacity and under or backhoe weighing 96,000 pounds or less, assistant tug operator.

OPERATING ENGINEERS - HEAVY AND HIGHWAY CONSTRUCTION

Class 1. Craft Foreman; Asphalt Plant; Asphalt Heater and Planer Combination; Asphalt Heater Scarfire; Asphalt Spreader; Autograder/GOMACO or other similar type machines; ABG Paver; Backhoes with Caisson attachment; Ballast Regulator; Belt Loader; Caisson Rigs; Car Dumper; Central Redi-Mix Plant; Combination Backhoe Front Endloader Machine, (1 cu. yd. Backhoe Bucket or over or with attachments); Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Paver over 27E cu. ft.; Concrete Placer; Concrete Tube Float; Cranes, all attachments; Cranes, Hammerhead, Linden, Peco & Machines of a like nature; Crete Crane; Crusher, Stone, etc.; Derricks, All; Derrick Boats; Derricks, Traveling; Dowell machine with Air Compressor; Dredges; Field Mechanic-Welder; Formless Curb and Gutter Machine; Gradall and Machines of a like nature; Grader,

Elevating; Grader, Motor Grader, Motor Patrol, Auto Patrol, Form Grader, Pull Grader, Subgrader; Guard Rail Post Driver Mounted; Hoists, One, Two and Three Drum; Hydraulic Backhoes; Backhoes with shear attachments; Mucking Machine; Pile Drivers and Skid Rig; Pre-Stress Machine; Pump Cretes Dual Ram; Rock Drill - Crawler or Skid Rig; Rock Drill - Truck Mounted; Roto Mill Grinder; Slip-Form Paver; Soil Test Drill Rig (Truck Mounted); Straddle Buggies; Hydraulic Telescoping Form (Tunnel); Tractor Drawn Belt Loader (with attached pusher - two engineers); Tractor with Boom; Tractaire with Attachments; Trenching Machine; Truck Mounted Concrete Pump with Boom; Raised or Blind Hole; Drills (Tunnel Shaft); Underground Boring and/or Mining Machines; Wheel Excavator; Widener (APSCO).

Class 2. Batch Plant; Bituminous Mixer; Boiler and Throttle Valve; Bulldozers; Car Loader Trailing Conveyors; Combination Backhoe Front Endloader Machine (less than 1 cu. yd. Backhoe Bucket or over or with attachments); Compressor and Throttle Valve; Compressor, Common Receiver (3); Concrete Breaker or Hydro Hammer; Concrete Grinding Machine; Concrete Mixer or Paver 7S Series to and including 27 cu. ft.; Concrete Spreader; Concrete Curing Machine, Burlap Machine, Belting Machine and Sealing Machine; Concrete Wheel Saw; Conveyor Muck Cars (Haglund or Similar Type); Drills, All; Finishing Machine - Concrete; Greaser Engineer; Highlift Shovels or Front Endloader; Hoist - Sewer Dragging Machine; Hydraulic Boom Trucks (All Attachments); Hydro-Blaster; All Locomotives, Dinky; Pump Cretes; Squeeze Cretes-Screw Type Pumps, Gypsum Bulker and Pump; Roller, Asphalt; Rotoary Snow Plows; Rototiller, Seaman, etc., self-propelled; Scoops - Tractor Drawn; Self-Propelled Compactor; Spreader - Chip - Stone, etc.; Scraper; Scraper - Prime Mover in Tandem (Regardless of Size); Tank Car Heater; Tractors, Push, Pulling Sheeps Foot, Disc, Compactor, etc.; Tug Boats.

Class 3. Boilers; Brooms, All Power Propelled; Cement Supply Tender; Compressor, Common Receiver (2); Concrete Mixer (Two Bag and Over); Conveyor, Portable; Farm-Type Tractors Used for Mowing, Seeding, etc.; Fireman on Boilers; Forklift Trucks; Grouting Machine; Hoists, Automatic; Hoists, All Elevators; Hoists, Tugger Single Drum; Jeep Diggers; Pipe Jacking Machines; Post-Hole Digger; Power Saw, Concrete Power Driven; Pug Mills; Rollers, other than asphalt; Seed and Straw Blower; Steam Generators; Stump Machine; Winch Trucks with "A" Frame; Work Boats; Tamper - Form-Motor Driven.

Class 4. Air Compressor; Combination - Small Equipment Operator; Directional Boring Machine; Generators; Heaters, Mechanical; Hydraulic Power Unit (Pile Driving, Extracting, or Drilling); Hydro-Blaster; Light Plants, All (1 through 5); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Pumps, Well Points; Tractaire; Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 5. Bobcats (all); Brick Forklifts, Oilers.

TRAFFIC SAFETY

Work associated with barricades, horses and drums used to reduce lane usage on highway work, the installation and removal of temporary lane

markings, and the installation and removal of temporary road signs.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION - EAST & WEST

Class 1. Two or three Axle Trucks. A-frame Truck when used for transportation purposes; Air Compressors and Welding Machines, including those pulled by cars, pick-up trucks and tractors; Ambulances; Batch Gate Lockers; Batch Hopperman; Car and Truck Washers; Carry-all; Fork Lifts and Hoisters; Helpers; Mechanics Helpers and Greasers; Oil Distributors 2-man operation; Pavement Breakers; Pole Trailer, up to 40 feet; Power Mower Tractors; Self-propelled Chip Spreader; Skipman; Slurry Trucks, 2-man operation; Slurry Truck Conveyor Operation, 2 or 3 man; Teamsters Unskilled dumpman; and Truck Drivers hauling warning lights, barricades, and portable toilets on the job site.

Class 2. Four axle trucks; Dump Carts and Adgetors under 7 yards; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnapulls or Turnatrailers when pulling other than self-loading equipment or similar equipment under 16 cubic yards; Mixer Trucks under 7 yards; Ready-mix Plant Hopper Operator, and Winch Trucks, 2 Axles.

Class 3. Five axle trucks; Dump Carts and Adgetors 7 yards and over; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnatrailers or turnapulls when pulling other than self-loading equipment or similar equipment over 16 cubic yards; Explosives and/or Fission Material Trucks; Mixer Trucks 7 yards or over; Mobile Cranes while in transit; Oil Distributors, 1-man operation; Pole Trailer, over 40 feet; Pole and Expandable Trailers hauling material over 50 feet long; Slurry trucks, 1-man operation; Winch trucks, 3 axles or more; Mechanic--Truck Welder and Truck Painter.

Class 4. Six axle trucks; Dual-purpose vehicles, such as mounted crane trucks with hoist and accessories; Foreman; Master Mechanic; Self-loading equipment like P.B. and trucks with scoops on the front.

Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available. If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 618/993-7271 for wage rates or clarifications.

LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators

(regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.

SPECIAL ATTACHMENT NO. 7

SEXUAL HARASSMENT POLICY

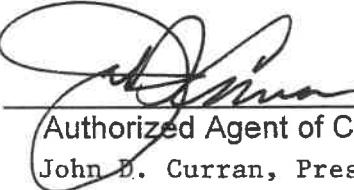
Please be advised that pursuant to Public Act 87-1257, effective July 1, 1993, 775 ILCS 5/2-105 (A) has been amended to provide that every party to a public contract must:

"Have written sexual harassment policies that shall include, at a minimum, the following information: (I) the illegality of sexual harassment; (II) the definition of sexual harassment under State law; (III) a description of sexual harassment, utilizing examples; (IV) the contractor's internal complaint process including penalties; (V) the legal recourse, investigative and complaint process available through the Department (of Human Rights) and the Commission (Human Rights Commission); (VI) directions on how to contact the Department and Commission; and (VII) protection against retaliation as provided by Section 6-101 of the Act. (Illinois Human Rights Act). (emphasis added)

Pursuant to 775 ILCS 5/1-103 (M) (2002), a "public contract" includes:

...every contract to which the State, any of its political subdivisions or any municipal corporation is a party."

I, John D. Curran, having submitted a proposal for Meccon Industries, Inc.
(Name) (Name of Contractor)
for High Service Pump Upgrade (General Description of Work Proposed on) to
the Village of Orland Park, hereby certifies that said contractor has a written sexual
harassment policy in place in full compliance with 775 ILCS 5/2-105 (A) (4).

By: 

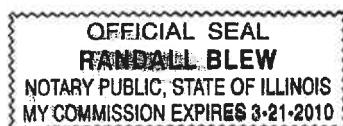
John D. Curran
Authorized Agent of Contractor

John D. Curran, President

Subscribed and sworn to before
me this 29th day of August, 20 07

Notary Public

Randall Blew



SPECIAL ATTACHMENT NO. 8

EQUAL EMPLOYMENT OPPORTUNITY

Section I. This EQUAL EMPLOYMENT OPPORTUNITY CLAUSE is required by the Illinois Human Rights Act and the Rules and Regulations of the Illinois Department of Human Rights published at 44 Illinois Administrative Code Section 750, et seq.

Section II. In the event of the Contractor's noncompliance with any provision of this Equal Employment Opportunity Clause, the Illinois Human Right Act, or the Rules and Regulations for Public Contracts of the Department of Human Rights (hereinafter referred to as the Department) the Contractor may be declared non-responsible and therefore ineligible for future contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations, and this agreement may be canceled or avoided in whole or in part, and such other sanctions or penalties may be imposed or remedies involved as provided by statute or regulation.

During the performance of this Agreement, the Contractor agrees:

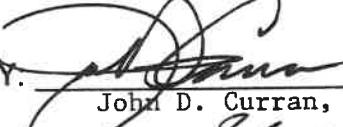
- A.** That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin or ancestry; and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization.
- B.** That, if it hires additional employees in order to perform this Agreement, or any portion hereof, it will determine the availability (in accordance with the Department's Rules and Regulations for Public Contracts) of minorities and women in the area(s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not underutilized.
- C.** That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, marital status, national origin or ancestry, age, or physical or mental handicap unrelated to ability, or an unfavorable discharge from military service.
- D.** That it will send to each labor organization or representative of workers with which it has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the Contractor's obligations under the Illinois Human Rights Act and Department's Rules and Regulations for Public Contract.
- E.** That it will submit reports as required by the Department's Rules and Regulations for Public Contracts, furnish all relevant information as may from time to time be requested by the Department or the contracting agency, and in all respects comply with the Illinois Human Rights Act and Department's Rules and Regulations for Public Contracts.
- F.** That it will permit access to all relevant books, records, accounts and work sites by personnel of the contracting agency and Department for purposes of investigation to ascertain compliance with the Illinois Human Rights Act and Department's Rules and

Regulations for Public Contracts.

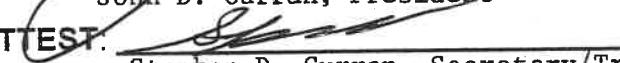
G. That it will include verbatim or by reference the provisions of this Equal Employment Opportunity Clause in every subcontract it awards under which any portion of this Agreement obligations are undertaken or assumed, so that such provisions will be binding upon such subcontractor. In the same manner as the other provisions of this Agreement, the Contractor will be liable for compliance with applicable provisions of this clause by such subcontractors; and further it will promptly notify the contracting agency and the Department in the event any subcontractor fails or refuses to comply therewith. In addition, the Contractor will not utilize any subcontractor declared by the Illinois Human Rights Department to be ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.

Section III. For the purposes of subsection G of Section II, "subcontract" means any agreement, arrangement or understanding, written or otherwise, between the Contractor and any person under which any portion of the Contractor's obligations under one or more public contracts is performed, undertaken or assumed; the term "subcontract", however, shall not include any agreement, arrangement or understanding in which the parties stand in the relationship of an employer and an employee, or between a Contractor or other organization and its customers.

ACKNOWLEDGED AND AGREED TO:

BY: 

John D. Curran, President

ATTEST: 

Stephen D. Curran, Secretary/Treasurer

DATE: August 29, 2007

SPECIAL ATTACHMENT NO. 9

APPRENTICESHIP AND TRAINING PROGRAM CERTIFICATION

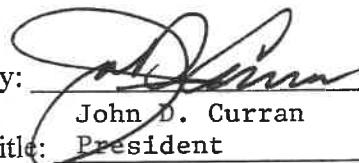
I, John D. Curran, having been first duly sworn depose and state as follows:

I, John D. Curran, am the duly authorized agent for Meccon Industries, Inc., which has submitted a proposal to the Village of Orland Park for

High Service Pump Upgrade and I hereby certify
(Name of Project)

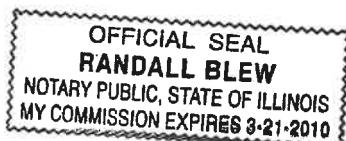
that Meccon Industries, Inc.
(Name of Company)

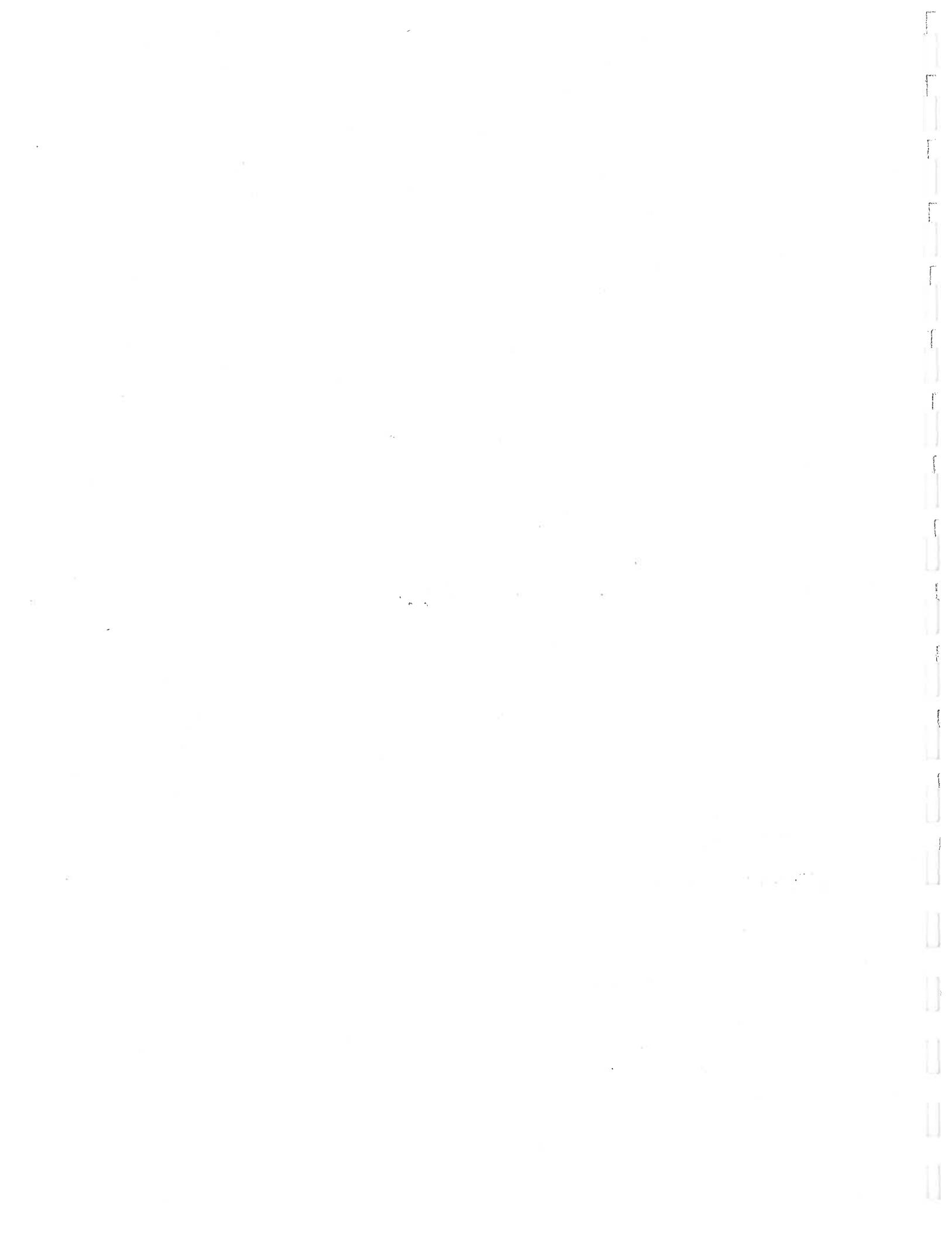
participates in apprenticeship and training programs approved and registered with the United States Department of Labor Bureau of Apprenticeship and Training.

By: 
John D. Curran
Title: President

Subscribed and Sworn to
Before me this 29th
Day of August, 20 07

Randall Blew





SPECIAL ATTACHMENT NO. 10

APPLICATION FOR PAYMENT NO. _____

To: _____ (OWNER)
From: _____ (CONTRACTOR)
Contract: _____
Project: _____
OWNER's Contract No. _____
For Work accomplished through the date of: _____
ENGINEER's Project No. _____

1. Original Contract Price:	\$ _____
2. Net change by Change Orders and Written Amendments (+ or -):	\$ _____
3. Current Contract Price (1 plus 2):	\$ _____
4. Total completed and stored to date:	\$ _____
5. Retainage (per Agreement):	
_____ % of completed Work:	\$ _____
_____ % of stored material:	\$ _____
Total Retainage:	\$ _____
6. Total completed and stored to date less retainage (4 minus 5):	\$ _____
7. Less previous Application for Payments:	\$ _____
8. DUE THIS APPLICATION (6 MINUS 7):	\$ _____

Accompanying Documentation:

CONTRACTOR'S Certification:

The undersigned CONTRACTOR certifies that (1) all previous progress payments received from OWNER on account of Work done under the Contract referred to above have been applied on account to discharge CONTRACTOR's legitimate obligations incurred in connection with Work covered by prior Applications for Payment numbered 1 through _____ inclusive; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to OWNER indemnifying OWNER against any such Lien, security interest or encumbrance); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective.

Dated _____ CONTRACTOR

By: _____
State of _____
County of _____
Subscribed and sworn to before me this _____
day of _____, _____

Notary Public
My Commission expires: _____

Payment of the above AMOUNT DUE THIS APPLICATION is recommended.

Dated _____ ENGINEER

By: _____

APPLICATION FOR PAYMENT

INSTRUCTIONS

A. GENERAL INFORMATION

The sample form of Schedule of Values is intended as a guide only. Many projects require a more extensive form with space for numerous items, descriptions of Change Orders, identification of variable quantity adjustments, summary of materials and equipment stored at the site and other information. It is expected that a separate form will be developed by Engineer and Contractor at the time Contractor's Schedule of Values is finalized. Note also that the format for retainage must be changed if the Contract permits (or the law provides), and Contractor elects to deposit securities in lieu of retainage. Refer to Article 14 of the General and Supplementary Conditions for provisions concerning payments to Contractor.

B. COMPLETING THE FORM

The Schedule of Values, submitted and approved as provided in paragraphs 2.05.B.3 and 2.07 of the General and Supplementary Conditions, should be reproduced as appropriate in the space indicated on the Application for Payment form. Note that the cost of materials and equipment is often listed separately from the cost of installation. Also, note that each Unit Price is deemed to include Contractor's overhead and profit.

All Change Orders affecting the Contract Price should be identified and included in the Schedule of Values as required for progress payments.

The form is suitable for use in the Final Application for Payment as well as for Progress Payments; however, the required accompanying documentation is usually more extensive for final payment. All accompanying documentation should be identified in the space provided on the form.

C. LEGAL REVIEW

All accompanying documentation of a legal nature, such as Lien waivers, should be reviewed by an attorney, and Engineer should so advise Owner.

ITEM	UNIT PRICE	ESTIMATED QUANTITY	SCHEDULE OF VALUES AMOUNT	QUANTITY COMPLETED	AMOUNT	%	MATERIAL STORED	AMOUNT COMPLETED AND STORED
1.	\$		\$		\$	\$	\$	\$
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
21.								
22.								
23.								
24.								
25.								
26.								
27.								
28.								
29.								
30.								
TOTAL								
							\$	\$

Note: Total Schedule of Values Amount should equal the current Contract Price.

SPECIAL ATTACHMENT NO. 11

INSURANCE REQUIREMENTS

Please submit a policy Specimen Certificate of Insurance showing bidder's current coverage's

WORKERS COMPENSATION & EMPLOYER LIABILITY

\$1,000,000 – Each Accident

\$1,000,000 – Policy Limit

\$1,000,000 – Each Employee

Waiver of Subrogation in favor of the Village of Orland Park

AUTOMOBILE LIABILITY

\$1,000,000 – Combined Single Limit

GENERAL LIABILITY (Occurrence basis)

\$1,000,000 – Each Occurrence

\$2,000,000 – General Aggregate Limit

\$1,000,000 – Personal & Advertising Injury

\$2,000,000 – Products/Completed Operations Aggregate

Waiver of Subrogation in favor of the Village of Orland Park

EXCESS LIABILITY (Umbrella-Follow Form Policy)

\$5,000,000 – Each Occurrence

\$5,000,000 – Aggregate

EXCESS MUST COVER: General Liability, Automobile Liability, Workers Compensation

Any insurance policies providing the coverages required of the Contractor shall be specifically endorsed to identify "The Village of Orland Park, and their respective officers, trustees, directors, employees and agents as Additional Insureds on a primary/non-contributory basis with respect to all claims arising out of operations by or on behalf of the named insured." If the named insureds have other applicable insurance coverage, that coverage shall be deemed to be on an excess or contingent basis. The policies shall also contain a Waiver of Subrogation in favor of the Additional Insureds in regards to General Liability and Workers Compensation coverage's. The certificate of insurance shall also state this information on its face. Certificates of insurance must state that the insurer shall provide the Village with thirty (30) days prior written notice of any change in, or cancellation of required insurance policies. The words "endeavor to" and "but failure to do so shall impose no obligation or liability of any kind upon the insurer, its agents or representatives" must be stricken from all Certificates of Insurance submitted to the Village. Any insurance company providing coverage must hold an A VII rating according to Best's Key Rating Guide. Permitting the contractor, or any subcontractor, to proceed with any work prior to our receipt of the foregoing certificate and endorsement however, shall not be a waiver of the contractor's obligation to provide all of the above insurance.

The bidder agrees that if they are the selected contractor, within ten days after the date of notice of the award of the contract and prior to the commencement of any work, you will furnish evidence of Insurance coverage providing for at minimum the coverages and limits described above directly to the Village of Orland Park, Denise Domalewski, Contract Administrator, 14700 S. Ravinia Avenue, Orland Park, Illinois 60462. Failure to provide this evidence in the time frame specified and prior to beginning of work may result in the termination of the Village's relationship with the selected bidder and the bid will be awarded to the next lowest bidder or result in creation of a new bid.

ACCEPTED & AGREED THIS 29th DAY OF August, 2007



Signature

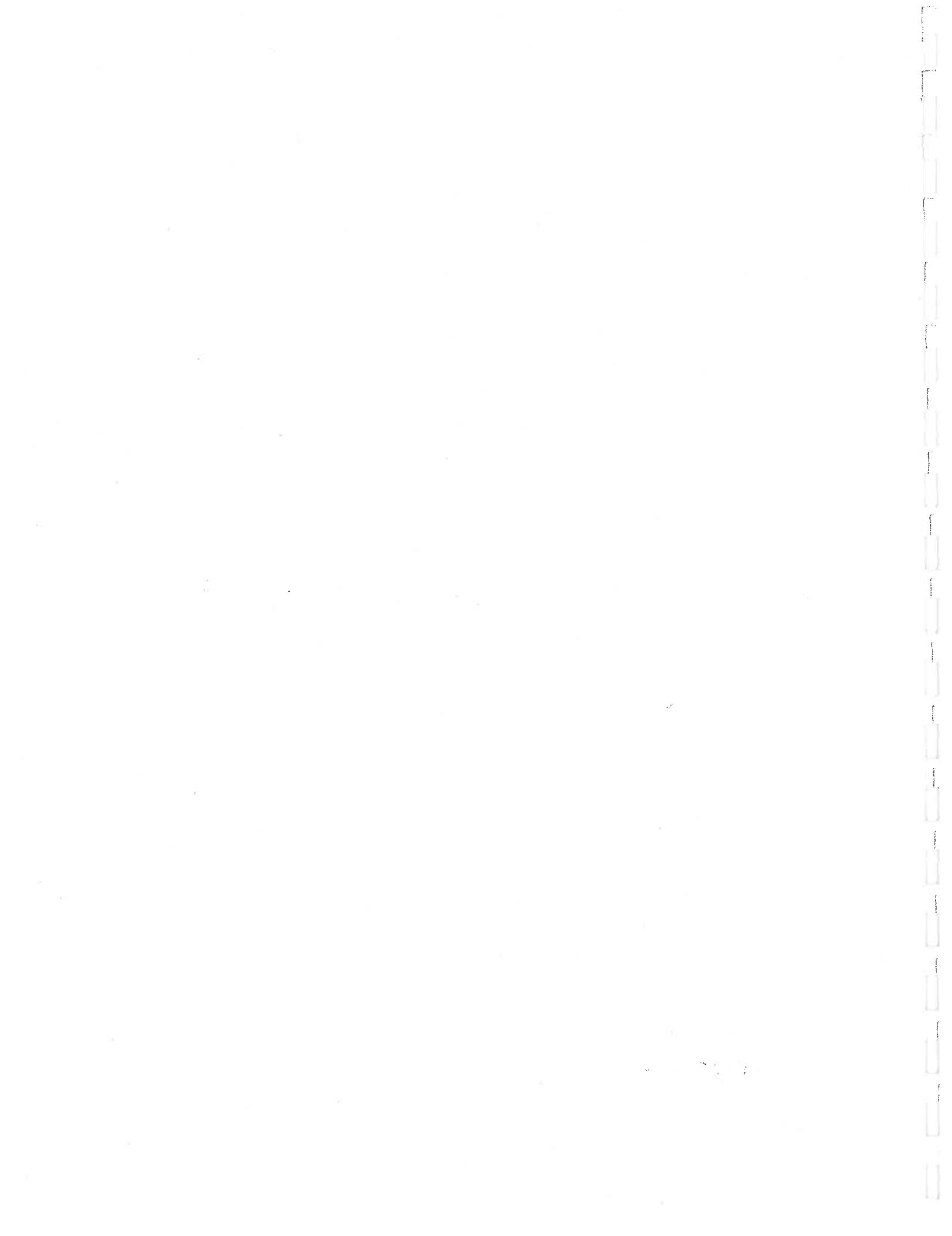
John D. Curran, President

Printed Name & Title

Authorized to execute agreements for:

Meccon Industries, Inc.

Name of Company



ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
08/28/07

PRODUCER
Arthur J Gallagher RMS, Inc.
 2 Pierce Place
 Itasca, IL 60143

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERNS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED
Mecon Industries, Inc.
 PO Box 206
 Lansing, IL 60438

INSURERS AFFORDING COVERAGE	NAIC #
INSURER A: Old Republic Insurance Co.	24147
INSURER B: Illinois Union Insurance Company	27960
INSURER C: St. Paul Surplus Lines Insurance Co.	30481
INSURER D:	
INSURER E:	

COVERAGE(S)

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR ADD'L LTR	INSR'D TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	GENERAL LIABILITY X COMMERCIAL GENERAL LIABILITY [] CLAIMS MADE [X] OCCUR	MWZY57496	04/01/07	04/01/08	EACH OCCURRENCE \$1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$100,000 MED EXP (Any one person) \$5,000 PERSONAL & ADV INJURY \$1,000,000 GENERAL AGGREGATE \$2,000,000 PRODUCTS - COMP/OP AGG \$2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER: [] POLICY [X] PRO- JECT [] LOC				
A	AUTOMOBILE LIABILITY X ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS X HIRED AUTOS X NON-OWNED AUTOS X Physical Damage	MWTB19827	04/01/07	04/01/08	COMBINED SINGLE LIMIT (Ea accident) \$1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	GARAGE LIABILITY [] ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN EA ACC \$ AUTO ONLY: AGG \$
B	EXCESS/UMBRELLA LIABILITY X OCCUR [] CLAIMS MADE DEDUCTIBLE X RETENTION \$ 10,000	G22022878002	04/01/07	04/01/08	EACH OCCURRENCE \$10,000,000 AGGREGATE \$10,000,000 \$ \$ \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below	MWC115134	04/01/07	04/01/08	X WC STATU- TORY LIMITS OTH- ER E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE - EA EMPLOYEE \$1,000,000 E.L. DISEASE - POLICY LIMIT \$1,000,000
C	OTHER Excess over primary umbrella occurrence form	QY01225412	04/01/07	04/01/08	\$15,000,000 Each Occ \$15,000,000 Aggregate

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

For Bidding Purposes Only

RE: High Service Pumps Upgrade

(See Attached Descriptions)

CERTIFICATE HOLDER

CANCELLATION

Village of Orland Park
 14700 S. Ravinia Ave.
 Orland Park, IL 60462

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

Michael R. Peach

IMPORTANT

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

DISCLAIMER

The Certificate of Insurance on the reverse side of this form does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend or alter the coverage afforded by the policies listed thereon.

DESCRIPTIONS (Continued from Page 1)

The following are shown as additional insureds with respect to General Liability coverage as evidenced herein on a primary/non contributory basis as required by written contract with respect to work performed by the named insured. A waiver of subrogation in favor of the following is included under the General Liability and Workers' Compensation coverage as evidenced herein as required by written contract.

Excess Liability follows form.

The Village of Orland Park and their respective officers, trustees, directors, employees and agents.

SECTION 01110
SUMMARY OF WORK

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Description of Work
- B. Constraints
- C. CONTRACTOR's Use of Site
- D. Work Sequence
- E. Owner Occupancy

1.2 DESCRIPTION OF WORK

- A. General: The Work to be done under this Contract consists of the replacement of two high service pumps as shown and specified in Contract Documents entitled High Service Pumps Upgrade.
- B. The Work includes:
 1. Removing two existing vertical turbine pumps (Nos. 1 and 6), piping, and appurtenances up to the 16-inch flanged elbow above the pump room floor, including salvage of existing pumps and motors for OWNER and delivery to a storage location within the Village as designated by OWNER.
 2. Furnishing and installing two new vertical turbine pumps to replace existing Pump Nos. 1 and 6, including discharge piping to connect to existing 16-inch flanged elbow, adjustment of existing piping to accept new pump equipment, 16-inch butterfly valves, control equipment, and other appurtenances required for a complete and operating installation.
 3. Insulation of all new piping and fittings.
 4. Removing electrical equipment, cables, wires to be replaced, including main circuit breaker, tie circuit breaker, cables, cable straps, and wire. Salvage existing main circuit breaker for use as new tie circuit breaker. Salvage existing tie circuit breaker for future use by the OWNER.

5. Furnishing and installing a new main circuit breaker in existing motor control center, including relocation of equipment, and wiring.
6. Installing the existing main circuit breaker as the tie circuit breaker.
7. Upgrading the existing solid state reduced voltage starters for Pump Nos. 1 and 6 by reprogramming the existing DS switches and replacing the solid state trip units in the circuit breakers.
8. Furnishing, installing, and terminating of new cables and wire between the pumping units and motor control center.
9. Removing existing limit switches, solenoid valves, pressure switches, start-stop and emergency push buttons and replacing them with new equipment.
10. Programming of the existing SCADA system for integration of the two new High Service Pumps. SCADA work must be performed by B&W Control Systems Integration, the current programmer for the OWNER.
11. Painting of new and damaged equipment and appurtenances.
12. Furnishing of all labor, material, superintendence, plant, power, light, heat, fuel, water, tools, appliances, equipment, supplies, services and other means of construction necessary or proper for performing and completing the Work.
13. Sole responsibility for adequacy of equipment.
14. Maintaining the Work area and site in a clean and acceptable manner.
15. Maintaining existing facilities in service at all times except where specifically provided for otherwise herein.
16. Protection of finished and unfinished Work.
17. Repair and restoration of Work damaged during construction.
18. Furnishing as necessary proper equipment and machinery, of a sufficient capacity, to facilitate the Work and to handle all emergencies normally encountered in Work of this character.
19. Furnishing, installing, and protecting all necessary guides, track rails, bearing plates, anchor and attachment bolts, and all other appurtenances needed for the installation of the devices included in the equipment specified. Make anchor bolts of appropriate size, strength and material for the purpose intended. Furnish substantial templates and shop drawings for installation.

- C. Implied and Normally Required Work: It is the intent of these Specifications to provide the OWNER with complete operable systems, subsystems and other items of Work. Any part or item of Work which is reasonably implied or normally required to make each installation satisfactorily and completely operable is deemed to be included in the Work and the Contract Amount. All miscellaneous appurtenances and other items of Work incidental to meeting the intent of these Specifications are included in the Work and the Contract Amount even though these appurtenances may not be specifically called for in these Specifications.
- D. Quality of Work: Regard the apparent silence of the Contract Documents as to any detail, or the apparent omission from them of a detailed description concerning any Work to be done and materials to be furnished as meaning that only the best general practice is to prevail and that only materials and workmanship of the best quality are to be used. Interpretation of these specifications will be made upon this basis.

1.3 CONSTRAINTS

- A. The Contract Documents are intended to allow the CONTRACTOR flexibility in construction of the Work, however, the following constraints apply:
 1. Removal and installation of the high service pumps cannot be done between May 15 and September 15. Additional restrictions on the construction time may be necessary due to seasonal water demands. Schedule pump removal and installation with the OWNER a minimum of one week prior to starting work.
 2. Limit construction activities to Monday through Friday, 7:30 to 4:00 pm, except as noted below for station power shut downs. Exception to these limits may be granted on a case-by-case basis by the OWNER.
 3. The Pumping Station is normally unmanned. Notify the OWNER a day in advance when entry to the Pumping Station is necessary.
 4. Replace the two existing high service pumps one at a time. Prove successful operation of the first pump replaced by allowing the OWNER to operate the new high service pump for one week prior to starting work on the second pump to be replaced.
 5. Schedule power shut down for main circuit breaker replacement with the electric utility company and OWNER prior to starting work. Replace main circuit breaker on Sunday only, between 1:00 am and 9:00 am.
 6. Change the tie circuit breaker after one week of satisfactory operation of the new main circuit breaker. Schedule power shut down for tie circuit breaker

replacement with the OWNER prior to starting work and limit work to Sundays between 1:00 am and 9:00 am.

1.4 CONTRACTOR'S USE OF SITE

A. In addition to the requirements of paragraph 6.11 of the General and Supplementary Conditions, limit use of site and premises for work and storage to allow for the following:

1. Coordination of the Work under this CONTRACT with the work of the other contractors where Work under this CONTRACT encroaches on the Work of other contractors.
2. OWNER occupancy and access to operate existing facilities.
3. Coordination of site use with ENGINEER.
4. Responsibility for protection and safekeeping of products under this CONTRACT.
5. Providing additional off site storage at no additional cost to OWNER as needed.

1.5 PUMP CONTROL SYSTEM PROGRAMMING REQUIREMENTS

A. The existing SCADA system controls pump operation based on liquid levels in the system elevated tanks. With the installation of the new High Service Pumps under this contract, the pumping station will be equipped with the following constant speed pumps:

Pumps	Capacity Each (gpm)	Horsepower Each
New Pump Nos. 1 and 6, Existing Pump Nos. 3 and 4	4900	300
Existing Pump Nos. 2 and 5	2800	200

B. Integrate new Pump Nos. 1 and 6 into the existing SCADA system as follows:

Pump Operating Sequence				
System Condition	Step No.	200 HP	300 HP	Description
Declining Elevated Tank Water Level	1	1	0	Start first 200 HP pump.
	2	0	1	Start first 300 HP pump, turn 200 HP pump off when 300 HP pump is on line.
	3	0	2	Start second 300 HP pump, all others remain on.
	4	0	3	Start third 300 HP pump, all others remain on.
	5	0	4	Start fourth 300 HP pump, all others remain on.
Increasing Elevated Tank Water Level	6	0	3	Stop first 300 HP pump, all others remain on.
	7	0	2	Stop second 300 HP pump, all others remain on.
	8	0	1	Stop third 300 HP pump, all others remain on.
	9	1	0	Stop fourth 300 HP pump, start 200 HP pump.
	10	0	0	Stop 200 HP pump.

Note: Pumps are turned off in the order that they are turned on, e.g. the first 300 HP pump turned on is the first one turned off.

1. In Auto mode, program the SCADA system to automatically start/stop the pumps based on elevated tank water level. Provide sequencing of pumps using a combination of a Step Matrix and Run Time setpoints.
2. Make the setpoints adjustable at the SCADA workstation via password protected screen.
3. Coordinate initial set point settings with OWNER.
4. Display the pump operating status and data at the SCADA workstation similar to existing pumps.

C. Have SCADA work performed by B&W Control Systems Integration, the current programmer for the OWNER. Contact Chris Sosnowski of B&W Control Systems Integration at 815-459-1260.

1.6 WORK SEQUENCE

- A. Construct Work in stages to accommodate OWNER's use of premises during construction period and in accordance with the limitations on the sequence of construction specified. Coordinate construction schedules and operations with ENGINEER. Refer to Constraints in Section 1.3 for additional information on work sequencing.
- B. Coordinate Work of all subcontractors.

1.7 OWNER OCCUPANCY

- A. OWNER will occupy premises during entire period of construction in order to maintain normal operations. Cooperate with OWNER's representative in all construction operations to minimize conflict, and to facilitate OWNER usage.
- B. Conduct operations so as to inconvenience the general public in the least.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

- A. Starting Work: Start Work within 10 days following the date stated in the Notice to Proceed and execute with such progress as may be required to prevent delay to other contractors or to the general completion of the project. Execute Work at such items and in or on such parts of the project, and with such forces, material and equipment, as to complete the Work in the time established by the Contract. At all times, schedule and direct the Work so that it provides an orderly progression to completion within the specified time for completion.

END OF SECTION

SECTION 01250
CHANGE ORDER AND WORK ORDER PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Definitions
- B. Change Orders
- C. Work Orders

1.2 DEFINITIONS

- A. Change Order: Refer to the Change Order definition in Article 1 of the General and Supplementary Conditions.
- B. Work Order: Work Order is a written directive to the CONTRACTOR issued on or after the effective date of the agreement; signed by the OWNER, recommended by the ENGINEER ordering an addition, deletion, or revision in the Work. A Work Order will subsequently be followed by the issuance of a Change Order.
- C. Overhead: Overhead is defined as the cost of administration, field office and home office costs, general superintendence, office engineering and estimating costs, other required insurance, materials used in temporary structures (not including form work), additional premiums on the performance bond of the CONTRACTOR, the use of small tools, scheduling costs, and all other costs incidental to the performance of the change or the cost of doing business.

1.3 CHANGE ORDERS

A. Initiation of Proposals:

- 1. From time to time, the OWNER or the ENGINEER may issue a Request for a Change Order Proposal. The Request will contain a description of the intended change with supplementary or revised Drawings and Specifications as applicable, and the projected time for accomplishing the change.
- 2. The CONTRACTOR may propose a change in the Work by submittal of a Change Order Request to the ENGINEER describing the proposed change with a statement of the reason for the change and the effect on the Contract time and price, along with supporting documentation.

B. Execution of Change Order Proposal:

1. When a Proposal is requested for changed work, submit proposal within 14 days following receipt of the Request from OWNER or ENGINEER. State the increase or decrease, if any, in Contract Completion time and Contract Price.
2. Explain proposal in sufficient detail to permit review by OWNER.
3. For Omitted Work the decrease in the Contract Price will be determined by the ENGINEER and will include appropriate amounts for profit and overhead.
4. The OWNER and ENGINEER will review the Proposal and may request additional information and documentation. Provide these items upon request.
5. If the OWNER decides to proceed with the change, the OWNER will issue a Change Order for signature first by the CONTRACTOR and then by the OWNER.
6. The CONTRACTOR will promptly complete the approved change in the Work on receipt of the executed Change Order.
 - a. Failure to sign the Change Order does not relieve the CONTRACTOR from performing the Work if the Change Order is signed by the OWNER.

C. Compute the cost of both additive and deductive changes in the Work in accordance with Article 12 of the General and Supplementary Conditions and as follows:

1. Include, the costs of labor, crew foreman and general foreman performing or directly supervising the changed Work on the site.
2. To the labor cost add all net premium for Workman's Compensation, taxes pursuant to the Federal Social Security Act, and payments required under State and Federal unemployment laws.
3. Add necessary extra materials, delivered at the site.
4. Include rent for plant and equipment at unit rental costs for similar rentals from an independent firm (i.e. a firm which is not owned in whole or in part by the CONTRACTOR). If equipment is owned by CONTRACTOR or rented from a firm in which the CONTRACTOR has an interest, calculate the rent in accordance with the applicable provisions and terms of the

current "Cost Reference Guide for Construction Equipment" published by Dataquest.

1.4 WORK ORDERS

- A. Initiation by OWNER: OWNER may issue a Work Order with a Notice to Proceed without a prior Request for a Change Order Proposal or the CONTRACTOR's signature.
- B. Payment Determination: The OWNER will designate the method of determining the amount of compensation or credit, if any, based on one of the methods contained in Article 12 of the General and Supplementary Conditions.
- C. Timing: Proceed with the change in the Work immediately upon receipt of the Work Order.
- D. Addition to Contract: The Work Order will be incorporated into the Contract Documents via a Change Order at a later date.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 01290

PAYMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Schedule of Values
- B. Application for Payment

1.2 SCHEDULE OF VALUES

- A. Approval of Schedule: Submit for approval a preliminary schedule of values, in duplicate, for all of the Work. Prepare preliminary schedule in accordance with paragraph 2.05 of the General and Supplementary Conditions. Submit preliminary schedule of values within 15 calendar days after date established in Notice to Proceed. Submit final schedule of values in accordance with paragraph 2.07 of the General and Supplementary Conditions.
- B. Format: Utilize a format similar to the Table of Contents of the Project Specifications. Identify each line item with number and title of the major specification section. Identify site mobilization, bonds and insurance. Include within each line item, a direct proportional amount of CONTRACTOR'S overhead and profit.
- C. Revisions: With each Application for Payment revise schedule to list approved Change Orders.

1.3 APPLICATION FOR PAYMENT

- A. Required Copies: Submit three copies of each application on EJCDC Form No. 1910-8-E (1996) or approved equal. Present required information in typewritten form or on electronic media printout.
- B. Execute certification by signature of authorized officer.
- C. Use data from approved Schedule of Values.
- D. Stored Materials: When payment for materials stored is permitted, submit a separate schedule for Materials Stored showing line item, description, previous value received, value incorporated into the Work and present value.

- E. Change Orders: List each authorized Change Order as an extension on continuation sheet, listing Change Order number and dollar amount as for an original item of work.
- F. Final Payment: Prepare Application for Final Payment as required in paragraph 14.07 of the General and Supplementary Conditions.
- G. Submit an updated construction schedule with each Application for Payment.
- H. Submit application for payment to ENGINEER on, or before, the first of each month.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01310
COORDINATION AND MEETINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coordination
- B. Preconstruction Conference
- C. Progress Meetings

1.2 COORDINATION

- A. General: Coordinate scheduling, submittals, and Contract work to assure efficient and orderly sequence of installation of interdependent construction elements.
- B. Accessory Placement: Place conduits, saddles, boxes, cabinets, sleeves, inserts, foundation bolts, anchors and other like work in floors, roofs or walls of buildings and structures in conformity with the construction program.

1.3 PRECONSTRUCTION CONFERENCE

- A. General: Prior to commencement of the Work, in accordance with paragraph 2.06 of the General and Supplementary Conditions, the OWNER will conduct a preconstruction conference to be held at a predetermined time and place.
- B. Delineation of Responsibilities: The purpose of the conference is to designate responsible personnel, to establish a working relationship among the parties and to identify the responsibilities of the OWNER, ENGINEER and the CONTRACTOR. Matters requiring coordination will be discussed and procedures for handling such matters, established. The agenda will include:
 - 1. Submittal procedures
 - 2. Partial Payment procedures
 - 3. Maintenance of Records
 - 4. Schedules, sequences and maintenance of facility operations
 - 5. Safety and First Aid responsibilities
 - 6. Change Orders
 - 7. Use of site
 - 8. Housekeeping
 - 9. Equipment delivery

- C. Attendees: The preconstruction conference is to be attended by the representatives of the CONTRACTOR, the OWNER and the ENGINEER who will be associated with the project. Representatives of regulatory agencies, subcontractors, and principal suppliers may also attend when appropriate.
- D. Chair and Minutes: The preconstruction conference will be chaired by the ENGINEER who will also arrange for the keeping and distribution of summary notes to all attendees.

1.4 PROGRESS MEETINGS

- A. Meeting Frequency and Format: The OWNER will schedule progress meetings as required commensurate with the work in progress. Invite subcontractors and suppliers to attend as appropriate. The ENGINEER will prepare notes summarizing meeting discussions and key decisions made. Request that a progress meeting be scheduled if circumstances so warrant.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01325
PROGRESS SCHEDULE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Form of Schedules
- B. Content of Schedules: Submit for approval, a preliminary progress schedule in duplicate, in accordance with paragraph 2.05 of the General and Supplementary Conditions.
- C. Schedule Revisions
- D. Submittal Requirements

1.2 FORM OF SCHEDULES

- A. Prepare schedules in form of a horizontal bar chart.
 - 1. Provide separate horizontal bar for each trade or operation.
 - 2. Utilize a horizontal time scale and identify first work day of each week.
 - 3. Utilize scale and spacings to allow space for notations and future revisions.
- B. Utilize a listing format which chronologically indicates the order of start of each item of work.
- C. Identify each listing by major specification section numbers.

1.3 CONTENT OF SCHEDULES

- A. Completion Dates: Show the beginning and ending contract dates stated in documents. Schedules showing completion prior to the contract completion date will be accepted but in no event will they be considered basis for a claim for delay against the OWNER by the CONTRACTOR for the period between the early completion date and the completion date provided in the Contract Documents.
- B. Show complete sequence of construction by activity.

- C. Show dates for beginning and completion of each major element of construction and installation dates for major items of equipment. Elements shall include, but not be limited to, the following:
 - 1. Shop drawing receipt from supplier/manufacturer submitted to ENGINEER, review and return to supplier/manufacturer
 - 2. Material and equipment order, manufacturer, delivery, installation, and checkouts
 - 3. Performance tests and supervisory services activity
 - 4. Demolition
 - 5. Piping and equipment installation
 - 6. Electrical work activity
 - 7. Subcontractor's items of work
 - 8. Final cleanup
 - 9. Allowance for inclement weather
 - 10. Coordination with concurrent Work on site
- D. Show projected percentage of completion for each item as of first day of each month.

1.4 SCHEDULE REVISIONS

- A. As a minimum, revise construction schedule every 30 calendar days to reflect changes in progress of Work for duration of Contract. Submit a revised construction schedule with each partial payment request.
- B. Indicate progress of each activity at date of submittal.
- C. Show changes occurring since previous submittal of schedule.
 - 1. Major change in scope
 - 2. Activities modified since previous submittal
 - 3. Revised projections of progress and completion
 - 4. Other identifiable changes
- D. Provide a written report as needed to define:
 - 1. Problem areas, anticipated delays, and impact on schedule

2. Corrective action recommended and its effect
3. Effect of changes on schedules of other Contractors

1.5 SUBMITTAL REQUIREMENTS

- A. Schedule: Submit final progress schedule in accordance with paragraph 2.07 of General and Supplementary Conditions.
- B. For preliminary and final submittal of construction progress schedule and subsequent revisions thereof, furnish three copies to ENGINEER.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 01330

SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Description of Requirements
- B. Submittal Procedures
- C. Specific Submittal Requirements
- D. Action on Submittals
- E. Repetitive Reviews
- F. Forms

1.2 DESCRIPTION OF REQUIREMENTS

- A. This section specifies procedural requirements for shop drawings, product data, working drawings, samples, and other miscellaneous Work-related submittals.
- B. Do not proceed with the Work until shop drawings, product data, working drawings, samples and other Work-related submittals are “approved” or “approved as noted” in writing. Do not proceed with the Work until submittals required by the Contract Documents to be prepared by the CONTRACTOR’s licensed Professional Engineer have been accepted for conformity with the Contract Documents. Do not proceed with the Work until certifications, or other submittals not requiring approval, have been accepted for conformity with the Contract Documents.
- C. Promptly prepare and make submittals to insure proper construction, assembly and installation of the Work using those materials and equipment that comply with the Contract Documents. The ENGINEER may request submittals in addition to those specified when deemed necessary to adequately describe the Work. Use the same units of weights and measures used in the Contract Documents on all submittals. Make each submittal complete and in sufficient detail to allow ready determination of compliance with the Contract Documents and apply and complete a certification stamp on each submitted item and attach a completed transmittal form to each submittal package, as specified herein in Subsection 1.3C. Clearly identify proposed deviations from the Contract Documents.

D. Procedures concerning submittals such as the listing of manufacturers, suppliers, and subcontractors; construction progress schedule; schedule of shop drawing submissions; bonds; payment applications; insurance certificates; and schedule of values are specified elsewhere.

E. Submittal Definitions:

1. Substitution or "Or Equal" Submittals:

a. Materials or equipment the CONTRACTOR requests the ENGINEER to consider accepting, after bids are received, as substitutes for items specified or shown in the Contract Documents.

2. Shop Drawings:

a. Technical data, drawings and other similar information specially prepared for this Project by manufacturers and suppliers, including fabrication and installation drawings, diagrams, actual performance curves, data sheets, schedules, templates, patterns, reports, instructions, design mix formulas, measurements, and similar information not in standard printed form.

b. Standard information prepared without specific reference to the Project is not considered a Shop Drawing.

3. Product Data:

a. Stock or standard printed information on materials and equipment that has not been specially prepared for this Project, including specifications, installation instructions, catalog cuts, wiring diagrams, performance curves, and color charts.

4. Working Drawings:

a. Technical data, drawings and other similar information specially prepared for this Project by the CONTRACTOR, including fabrication and installation drawings, diagrams, and other similar information.

5. Samples:

a. Physical examples of materials that are used to show size, configuration, color, texture, pattern, and the like or that are to be used for independent evaluation and testing.

- b. Mock-ups are special types of samples that are too large or otherwise inconvenient for handling in the manner specified for transmittal of sample submittals.
6. Miscellaneous Submittals:
 - a. Submittals that do not fit into the previous categories, such as mill reports, guarantees, warranties, certifications, experience records, maintenance agreements, operation and maintenance manuals, workmanship bonds, survey data and reports, physical work records, quality testing and certifying reports, copies of industry standards, record drawings, field measurement data, and similar information.

1.3 SUBMITTAL PROCEDURES

- A. Scheduling:
 1. Submit for approval a preliminary schedule of submittals in duplicate and in accordance with paragraph 2.05 of the General and Supplementary Conditions.
 2. Schedule, prepare and transmit each submittal to ENGINEER sufficiently in advance of scheduled performance of related work and other applicable activities.
- B. Coordination:
 1. Coordinate the preparation and processing of submittals with the performance of the Work. Coordinate each submittal with other submittals and related activities, such as substitution requests, testing, purchasing, fabrication, delivery, and similar activities, that require sequential performance.
 2. Coordinate submission of different items of interrelated work so that one submittal will not be delayed by ENGINEER's need to review a related submittal. ENGINEER may withhold action on any submittal requiring coordination with other submittals until related submittals are forthcoming.
- C. Submittal Preparation:
 1. Review each submittal to determine that:
 - a. The items depicted in the submittal are intended for incorporation into the Work.
 - b. The items depicted in the submittal will fit in the space available.

- c. The information in the submittal has been coordinated with the requirements of the Contract Documents; work to be performed by all trades involved; field measurements and other requirements of the Work.

After each submittal has been reviewed and compliance with paragraph 1 above determined, place and complete a certification stamp on each submittal document. Use a stamp containing the information shown in the Forms Subsection herein.

2. Standard printed information will not be accepted for review unless full identification of the project-specific portions and any project-specific supplementary information is shown thereon in ink or typewritten form.
3. A submittal shall not encompass more than one Section of the Specifications.
4. Accurately and distinctly present the following on shop drawings and working drawings:
 - a. Manufacturer's name, address and telephone number.
 - b. All working and erection dimensions.
 - c. Arrangements and sectional views.
 - d. Necessary details, including complete information for making connections between work in this project and work in other related projects.
 - e. Electrical wiring connections between all equipment furnished including all internal wiring between internal components of equipment.
 - f. Kinds of materials and finishes.
 - g. Parts list and descriptions thereof.
5. Present, where applicable, such data as dimensions, weights, and performance characteristics on drawings for mechanical and electrical equipment. Show conformance with the performance characteristics and other criteria included in the Contract Documents.
6. Transmittal Form: Use the Submittal Transmittal form found at the end of this Section to forward each specific submittal package to the ENGINEER. Include all the information requested on the form and answer each question.

7. Submittal Numbering:

a. Number all submittals as follows:

(A) - (B)

Where:

(A) = Specification Section Number

(B) = Consecutive submittal number for the Specification Section Number listed in (A), with an alphabetic suffix indicating the sequential version of the submittal.

Examples: 01300-001A indicates the initial version of submittal number 001 for Specification Section 01300.

01300-001B indicates the second version of submittal number 001 for Specification Section 01300.

01300-002A indicates the initial version of submittal number 002 for Specification Section 01300.

b. When an item is resubmitted for any reason, use a new Submittal Transmittal Form with the same submittal number and a new, sequential alphabetic suffix.

D. Resubmittal Preparation:

1. Comply with the requirements described in the Submittal Preparation subsection above. In addition:

- a. Identify on the Submittal Transmittal Form that submittal is a resubmission.
- b. Make and clearly identify any corrections or changes required by ENGINEER's notations on the previous, returned submittal.
- c. Respond to ENGINEER's notations:
 - (1) On the Submittal Transmittal Form or on a separate page(s) attached to the Submittal Transmittal Form, answer or acknowledge, in writing, all notations or questions indicated by ENGINEER on the ENGINEER's response to the previous submittal.
 - (2) Identify each response by the corresponding question or notation number established by ENGINEER.

- (3) If CONTRACTOR does not respond to each notation or question, the ENGINEER will return the resubmission without action. Additional resubmittals will be required until the CONTRACTOR provides a written response to all of the ENGINEER's notations or questions.
- d. CONTRACTOR initiated revisions or variations:
 - (1) On the Submittal Transmittal Form identify variations or revisions from the previously reviewed submittal, other than those called for by ENGINEER.
 - (2) ENGINEER's responsibility for variations or revisions is established in paragraphs 6.17.D.3 and 6.17.E.3 of the General and Supplementary Conditions.

1.4 SPECIFIC SUBMITTAL REQUIREMENTS

- A. Specific submittals required for individual elements of work are specified in the individual Specification Sections. Except as otherwise indicated in the Specification Sections, comply with requirements specified herein for each type of submittal.
- B. Requests for Substitution or "Or Equal"
 1. Assemble all items related to a substitution or "or equal" request into one submittal in accordance with paragraph 6.05 of the General and Supplementary Conditions.
 2. Allow sufficient time for ENGINEER to:
 - a. Evaluate the substitution or "or equal" request.
 - b. Review additional information relative to the substitution or "or equal" request, if required by the ENGINEER
 - c. Review alternate materials or equipment if the substitution or "or equal" request is denied.
 3. If the CONTRACTOR intends to request a substitute(s) for the materials or equipment specified but not identified in the Specifications as requiring a submittal(s), schedule substitution request(s) in the schedule of submittals and submit as scheduled.

C. Shop and Working Drawings:

1. Submit graphical information at accurate scale. Indicate company name of manufacturer or supplier, address and telephone number. Show dimensions and clearly note which are based on field measurement. Identify materials and equipment that are included in the Work. Identify any revisions. Indicate compliance with standards. Note coordination requirements with other work. Highlight, encircle or otherwise indicate variations from the Contract Documents or previous submittals.
2. Include on each drawing or page:
 - a. Preparation date and revision dates.
 - b. Project name and, where applicable, project division number
 - c. Identification of Work-related items.
 - d. Specification Section number and page number.
 - e. Identification of equipment or materials.
 - f. Name of CONTRACTOR (and Subcontractor if applicable).
 - g. Name of Supplier and/or Manufacturer.
 - h. Field dimensions, clearly identified.
 - i. Standards or industry specification references.
 - j. Identification of deviations from the Contract Documents.
 - k. CONTRACTOR's stamp, signed and dated, certifying review of submittal, field measurements and compliance with the Contract Documents (see Subsection 1.7).
 - l. Physical location and location relative to other facilities that the Work-related equipment or materials are to be installed adjacent to or connected with.
3. Provide 8-inch wide by 3-inch high blank space for CONTRACTOR's and ENGINEER's stamps.
4. Number of Submittal copies:
 - a. Submit 3 blue or black line prints. One reproducible or one print will be returned with review comments.

5. Distribution:

- a. Do not proceed with the installation of materials, or equipment until stamped "approved" or "approved as noted" submittals are in the possession of the installer.
- b. Maintain one set of approved submittals at the Project site, available for use by the ENGINEER and others.
- c. After a submittal is stamped "Approved" (See Subsection 1.5), place the date of approval on three additional copies of the submittal and transmit to the ENGINEER together with one copy of a Submittal Transmittal Form containing substantially the same information required in Subsection 1.3.C. above.
- d. Identify any changes, other than those noted by the ENGINEER, when making a distribution submittal.
- e. Unless required elsewhere, provide distribution of approved submittals to subcontractors, suppliers, governing authorities, and others as necessary for proper performance of the Work.
- f. After a submittal is stamped "Examined and Returned for Correction" (See Subsection 1.5), make the necessary corrections and resubmit in accordance with Subsection 1.3.D. above. Revise and make resubmittals until approval is obtained.

D. Product Data:

1. Preparation:

- a. Assemble all data into a single submittal for each element of work or system. Where product data has been printed to include information on several similar products, some of which are not required for use on the subject Project, clearly mark copies to show such information is not applicable.
- b. Where data must be specially prepared for required materials or equipment because standard printed data are not suitable for use, submit the data as a shop drawing and not as product data.

2. Submittals:

- a. Submit product data with appropriate shop or working drawings, when applicable.
- b. Submit 3 copies.

3. Distribution:

- a. Follow distribution described in Subsection 1.4.C. 5 above.

E. Samples:

1. Preparation:

- a. Whenever possible, provide samples physically identical with the materials proposed for incorporation into the Work. Where variations in color, pattern or texture and the like are inherent in materials represented by samples, submit multiple samples (not less than 3) showing the approximate range of variations.

2. Submittals:

- a. Submit samples for visual review of generic kind, color, pattern, texture, and for final check of coordination of these characteristics with other related elements of Work.
- b. Include information with each sample to provide a generic description of the item, and its name, manufacturer, limitations, and compliance with standards.
- c. Submit 3 sets of samples, where specifications indicate selection of color, pattern, texture or similar characteristics from manufacturer's range of standard choices is necessary.

3. Distribution:

- a. Follow distribution described in Subsection 1.4,C.5 above.
- b. Maintain returned final set of samples at the Project site, in suitable condition and available for quality control comparisons throughout the course of performing the Work.
- c. Incorporate only undamaged samples into the Work, when permitted by the Contract Documents.

F. Mock-Ups:

1. Mock-ups and similar samples specified are recognized as special types of samples. Comply with samples submittal requirements to the greatest extent possible. Process Submittal Transmittal Forms to provide a record of activity.

G. Miscellaneous Submittals:

1. Inspection and Test Reports:
 - a. Identify each inspection and test report as either specially prepared for the Project or a standard publication of workmanship control testing at point of production. Process inspection and test reports in accordance with the requirements for shop drawings or product data as described in this Section.
2. Guarantees, Warranties, Maintenance Agreements, and Workmanship Bonds:
 - a. Refer to Specification sections for specific requirements.
3. Survey Data:
 - a. Refer to Specification sections for specific requirements on property surveys, building or structure condition surveys, field measurements, quantitative records of actual Work, damage surveys, photographs, and similar data required by Specification sections. Copies will not be returned.
 - (1) Survey Copies: Furnish 2 copies. Provide 10 copies of final property survey (if any).
 - (2) Condition Surveys: Furnish 2 copies.
4. Certifications:
 - a. Refer to Specification sections for specific requirements on submittal of certifications. Submit 7 copies. Certifications are submitted for review of conformance with specified requirements and information. Submittal is final when reviewed and returned by ENGINEER with no further action required.

5. Closeout Submittals:

- a. Refer to Specification sections and Section 01789 for specific requirements on submittal of closeout information, materials, tools, and similar items such as:
 - (1) Record Documents.
 - (2) Materials and Tools: Spare parts, extra and overrun stock, maintenance tools and devices, keys, and similar physical units to be submitted.
 - (3) Operation and maintenance data.

H. Operation and Maintenance Manuals:

1. Submit Operation and Maintenance Manuals in accordance with Section 01783.

1.5 ACTION ON SUBMITTALS

A. ENGINEER's Action:

1. General:

- a. Except for submittals for record and similar purposes, ENGINEER will review each submittal, mark with appropriate action, and return. Where submittal must be held for coordination, ENGINEER will also advise CONTRACTOR without delay.
- b. ENGINEER will stamp each submittal with uniform, self-explanatory action stamp, appropriately marked.

B. Action Stamps:

1. Approved:

- a. Final Unrestricted Release: Where submittals are marked "Approved", Work covered by submittal may proceed PROVIDED THE WORK COMPLIES WITH CONTRACT DOCUMENTS. Acceptance of Work will depend upon that compliance.

2. Approved As Noted:

- a. When submittals are marked "Approved as Noted", Work covered by submittal may proceed PROVIDED IT COMPLIES WITH BOTH ENGINEER'S NOTATIONS AND CORRECTIONS ON

SUBMITTAL AND WITH CONTRACT DOCUMENTS.
Acceptance of Work will depend on that compliance.

- b. Revise submittal in accordance with ENGINEER's notations in accordance with Paragraph 1.3.D, as applicable, of this section. Make resubmittal without delay. Repeat if necessary to obtain an "Approved" action marking.
- 3. Examined and Returned for Correction or Incomplete Submittal:
 - a. When submittals are marked "Examined and Returned for Correction" or "Incomplete Submittal", do not proceed with Work covered by submittal. Do not permit Work covered by submittal to be used at Project site or elsewhere where Work is in progress.
 - b. Revise submittal or prepare new submittal in accordance with ENGINEER's notations in accordance with Paragraph 1.3.D of this section. Make resubmittal without delay. Repeat if necessary to obtain different action marking.

1.6 REPETITIVE REVIEWS

- A. Cost of Repetitive Reviews: Submitted items will be reviewed no more than three times (initial submittal plus two resubmittals) at the OWNER's expense. All subsequent reviews will be performed at times convenient to the ENGINEER and at the CONTRACTOR's expense based on the ENGINEER's then prevailing rates including all direct and indirect costs and fees. Reimburse the OWNER for all such fees invoiced to the OWNER by the ENGINEER for third and subsequent submittals.
- B. Time Extension: Any need for more than one resubmission, or any other delay in ENGINEER's review of submittals, will not entitle CONTRACTOR to an extension of the Contract Time.

1.7 FORMS

- A. Attach a completed Submittal Transmittal Form to each submittal. A copy of the Form is furnished at the end of this section.
- B. Use rubber stamps on submittal documents to certify that the submittal meets Contract Document requirements. Stamp format should be similar to the following:

CONTRACTOR'S NAME

Approved and Certified to comply with the Contract Documents.

Approved and Certified to comply with the Contract Documents, with the exceptions or corrections specifically noted on the submittal data and/or attached documents.

PRINTED NAME: _____

TITLE: _____

SIGNATURE: _____

DATE: _____

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

CONTRACTOR'S NAME
SUBMITTAL TRANSMITTAL FORM

TO: _____

DATE: _____

SITE: _____

PROJECT NAME: _____

ATTN: _____
FROM: _____

SPEC. REF. NO. _____

DRAWING REF. NO. _____

SUBMITTAL NO. _____

SUPPLIER: _____

1. The following submittals are forwarded for your review:

No. of Repros/Copies	Supplier	Description	Dwg. No.	Date
/				
/				
/				
/				
/				
/				

2. Will item submitted for review fit in space provided in the Contract Documents? Yes No

3. Has work indicated in this submittal been coordinated with all trades? Yes No

4. Contractor has approved submittal and has affixed certification stamp? Yes No

5. Contractor's description and justification for deviations from the Contract Documents. (Use additional pages, if necessary)

6. Remarks: _____

Printed Name: _____

Signature: _____

END OF SECTION

SECTION 01422

REFERENCES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Reference Abbreviations
- B. Abbreviations
- C. Reference Standards
- D. Definitions

1.2 REFERENCE ABBREVIATIONS

- A. Reference to a technical society, trade association or standards setting organization, may be made in the Specifications by abbreviations in accordance with the following list:

AABC	Associated Air Balance Council
AAMA	Architectural Aluminum Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
ACI	American Concrete Institute
ADC	Air Diffusion Council
AFBMA	Anti-friction Bearing Manufacturers Association
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AHA	Association of Home Appliance Manufacturers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AMCA	Air Movement and Control Association, Inc.
ANSI	American National Standards Institute
APA	American Plywood Association
ARI	American Refrigeration Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Institute

AWPA	American Wood Preservers Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders' Hardware Manufacturers Association
BIA	Brick Institute of American
CABO	Council of American Building Officials
CAGI	Compressed Air and Gas Institute
CISPI	Cast Iron Soil Pipe Institute
CMAA	Crane Manufacturers Association of America
CRD	U.S. Corps of Engineers Specifications
CRSI	Concrete Reinforcing Steel Institute
CTI	Cooling Tower Institute
DHI	Door and Hardware Institute
DOH	Department of Health
DOT	Department of Transportation
FCC	Federal Communications Commission
Fed. Spec.	Federal Specifications
FGMA	Flat Glass Marketing Association
FM	Factory Mutual
HMI	Hoist Manufacturing Institute
HPMA	See HPVA
HPVA	Hardwood Plywood Veneer Association
ICEA	Insulated Cable Engineers Association
IEEE	Institute of Electrical and Electronics Engineers
IFI	Industrial Fasteners Institute
ISO	International Standards Organization
MIL	Military Specifications
MSS	Manufacturer's Standardization Society
NAAMM	National Association of Architectural Metal Manufacturers
NACM	National Association of Chain Manufacturers
NBS	National Bureau of Standards, See NIST
NEBB	National Environmental Balancing Bureau
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NETA	National Electrical Testing Association
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NFPA	National Fluid Power Association
NIST	National Institute of Standards and Technology
NLMA	National Lumber Manufacturers Association
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Act
PCI	Prestressed Concrete Institute
PDI	Plumbing and Drainage Institute
SAE	Society of Automotive Engineers
SCPRF	Structural Clay Products Research Foundation
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association

SPI	Society of the Plastics Industry
SSPC	Steel Structures Painting Council
STI	Steel Tank Institute
TCA	Tile Council of American
TIMA	Thermal Insulation Manufacturers' Association
UL	Underwriters' Laboratories, Inc.
USBR	U. S. Bureau of Reclamation
USBS	U. S. Bureau of Standards, See NIST

1.3 ABBREVIATIONS

A. Abbreviations which may be used in individual Specification Sections Divisions 1 through 16 are as follows:

alternating current	ac	efficiency	eff
American wire gauge	AWG	elevation	el
ampere(s)	amp	entering water temperature	ewt
ampere-hour(s)	AH	entering air temperature	eat
annual	ann	equivalent direct radiation	edr
Ampere Interrupting			
Capacity	AIC	face area	fa
atmosphere(s)	atm	face to face	f to f
average	avg	Fahrenheit	F
biochemical oxygen demand	BOD	feet per day	fpd
Board Foot	FBM	feet per hour	fph
brake horsepower	bhp	feet per minute	fpm
Brinell Hardness	BH	feet per second	fps
British thermal unit(s)	Btu	foot (feet)	ft
calorie (s)	cal	foot-candle	fc
carbonaceous biochemical		foot-pound	ft-lb
oxygen demand	CBOD	foot-pounds per minute	ft-lb/min
Celsius (centigrade)	C	foot-pounds per second	ft-lb/sec
Center to Center	C to C	formazin turbidity unit(s)	FTU
centimeter(s)	cm	frequency	freq
chemical oxygen demand	COD	fuel oil	FO
coefficient, valve flow	C _v	fuel oil supply	FOS
condensate return	CR	fuel oil return	FOR
cubic	cu		
cubic centimeter(s)	cc	gallon(s)	gal
cubic feet per day	cfd	gallons per day	gpd
cubic feet per hour	cfh	gallons per day per	
cubic feet per minute	cfm	cubic foot	gpd/cu ft
cubic feet per minute,		gallons per day per	
standard conditions	scfm	square foot	gpd/sq ft
cubic feet per second	cfs	gallons per hour	gph
cubic foot (feet)	cu ft	gallons per minute	gpm
cubic inch(es)	cu in	gallons per second	gps
cubic yard(s)	cu yd	gas chromatography and	
decibels	dB	mass spectrometry	GC-MS
decibels (A scale)	dBA	gauge	ga
degree(s)	deg	grain(s)	gr
dewpoint temperature	dpt	gram(s)	g
diameter	dia	grams per cubic centimeter	gm/cc
direct current	dc		
dissolved oxygen	DO	Heat Transfer Coefficient	U
dissolved solids	DS	height	hgt
dry-bulb temperature	dbt	Hertz	Hz
		horsepower	hp
		horsepower-hour	hp-hr
		hour(s)	hr

humidity, relative	rh	ounce(s)	oz
hydrogen ion concentration.....	pH	outside air	oa
inch(es).....	in	outside diameter.....	OD
inches per second.....	ips		
inside diameter.....	ID		
Jackson turbidity unit(s).....	JTU		
kelvin	K	parts per billion	ppb
kiloamperes	kA	parts per million	ppm
kilogram(s).....	kg	percent	pct
kilometer(s).....	km	phase (electrical).....	.. ph
kilovar (kilovolt-amperes reactive)	kvar	pound(s)	lb
kilovolt(s).....	kV	pounds per cubic foot	pcf
kilovolt-ampere(s).....	kVA	pounds per cubic foot	pcf
kilowatt(s)	kW	per hour.....	pcf/hr
kilowatt-hour(s)	kWh	pounds per day.....	lbs/day
linear foot (feet)	lin ft	pounds per day per	
liter(s).....	L	cubic foot	lbs/day/cu ft
megavolt-ampere(s)	MVA	pounds per day per	
meter(s)	m	square foot	lbs/day/sq ft
micrograms per liter.....	ug/L	pounds per square foot.....	psf
miles per hour	mph	pounds per square foot	
milliampere(s).....	mA	per hour.....	psf/hr
milligram(s)	mg	pounds per square inch	psi
milligrams per liter.....	mg/L	pounds per square inch	
milliliter(s)	mL	absolute.....	psia
millimeter(s).....	mm	pounds per square inch	
million gallons	MG	gauge.....	psig
million gallons per day.....	mgd	power factor.....	PF
millisecond(s).....	ms	pressure drop or	
millivolt(s)	mV	difference	dp
minute(s)	min	pressure, dynamic	
mixed liquor suspended solids	MLSS	(velocity).....	vp
nephelometric turbidity unit	NTU	pressure, vapor.....	vap pr
net positive suction head.....	NPSH	quart(s).....	qt
noise criteria.....	nc	Rankine.....	R
noise reduction coefficient.....	NRC	relative humidity.....	rh
number	no	resistance	res
		return air	ra
		revolution(s).....	rev
		revolutions per minute	rpm
		revolutions per second	rps
		root mean squared.....	rms
		safety factor	sf
		second(s)	sec
		shading coefficient.....	SC
		sludge density index	SDI

Sound Transmission

Coefficient	STC
specific gravity.....	sp gr
specific volume.....	Sp Vol
sp ht at constant pressure	Cp
square.....	sq
square centimeter(s).....	sq cm
square foot (feet).....	sq ft
square inch (es).....	sq in
square meter(s).....	sq m
square yard(s).....	sq yd
standard.....	std
static pressure.....	st pr
supply air.....	sa
suspended solids	SS

temperature	temp
temperature difference	TD
temperature entering	TE
temperature leaving.....	TL
thousand Btu per hour.....	Mbh
thousand circular mils.....	kcmil
thousand cubic feet	Mcf
threshold limit value	TLV
tons of refrigeration.....	tons
torque	TRQ
total dissolved solids.....	TDS
total dynamic head	TDH
total kjeldahl nitrogen	TKN
total oxygen demand.....	TOD
total pressure	TP
total solids	TS
total suspended solids	TSS
total volatile solids	TVS

vacuum.....	vac
viscosity	visc
volatile organic chemical	VOC
volatile solids	VS
volatile suspended solids.....	VSS
volt(s)	V
volts-ampere(s)	VA
volume	vol

watt(s)	W
watthour(s)	Wh

watt-hour demand	WHD
watt-hour demand meter	WHDM
week(s).....	wk
weight	wt
wet-bulb	WB
wet bulb temperature	WBT

yard(s)	yd
year(s)	yr

B. Use ASME Y1.1-1989, "Abbreviations for use on Drawings and in Text" for abbreviations for units of measure not included herein in Paragraph 1.4.

1.4 REFERENCE STANDARDS

A. Latest Edition: Contrue references to furnishing materials or testing, which conform to the standards of a particular technical society, organization, or body, to mean the latest standard, code, or specification of that body, adopted and published as of the date of bidding this Contract. Standards referred to herein are made a part of these Specifications to the extent which is indicated or intended.

B. Precedence: The duties and responsibilities of the OWNER, CONTRACTOR or ENGINEER, or any of their consultants, agents or employees are set forth in the Contract Documents, and are not changed or altered by any provision of any referenced standard specifications, manuals or code, whether such standard manual or code is or is not specifically incorporated by reference in the Contract Documents. Any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority, to undertake responsibility contrary to the powers of the ENGINEER as set forth in the Contract Documents cannot be assigned to the ENGINEER or any of the ENGINEER's consultants, agents or employees.

1.5 DEFINITIONS

A. In these Contract Documents the words furnish, install and provide are defined as follows:

1. Furnish (materials): to supply and deliver to the project ready for installation and in operable condition.
2. Install (services or labor): to place in final position, complete, anchored, connected in operable condition.
3. Provide: to furnish and install complete. Includes the supply of specified services. When neither furnish, install or provide is stated, provide is implied.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01450
QUALITY CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Inspection Services
- B. Inspection of Materials
- C. Quality Control
- D. Costs of Inspection
- E. Acceptance Tests
- F. Failure to Comply with Contract

1.2 SUBMITTALS

- A. General: Provide all submittals, including the following, as specified in Division 1.
- B. Certificate Submittals: Furnish the ENGINEER authoritative evidence in the form of Certificates of Manufacture that the materials and equipment to be used in the Work have been manufactured and tested in conformity with the Contract Documents. Include copies of the results of physical tests and chemical analyses, where necessary, that have been made directly on the product or on similar products of the manufacturer.

1.3 INSPECTION SERVICES

- A. OWNER's Access: At all times during the progress of the Work and until the date of final completion, afford the OWNER and ENGINEER every reasonable, safe, and proper facility for inspecting the Work at the site. The observation and inspection of any work will not relieve the CONTRACTOR of any obligations to perform proper and satisfactory work as specified. Replace work rejected due to faulty design, inferior, or defective materials, poor workmanship, improper installation, excessive wear, or nonconformity with the requirements of the Contract Documents, with satisfactory work at no additional cost to the OWNER. Replace as directed, finished or unfinished work found not to be in strict accordance with the Contract, even though such work may have been previously approved and payment made therefor.

- B. Rejection: The OWNER and the OWNER's Authorized Representatives have the right to reject materials and workmanship which are defective or require correction. Promptly remove rejected work and materials from the site.
- C. Inferior Work Discoveries: Failure or neglect on the part of the OWNER or the OWNER's Authorized Representatives to condemn or reject bad or inferior work or materials does not imply an acceptance of such work or materials. Neither is it to be construed as barring the OWNER or the OWNER's Authorized Representatives at any subsequent time from recovering damages or a sum of money needed to build anew all portions of the Work in which inferior work or improper materials were used.
- D. Removal for Examination: Should it be considered necessary or advisable by the OWNER or the OWNER's Authorized Representatives, at any time before final acceptance of the Work, to make examinations of portions of the Work already completed, by removing or tearing out such portions, promptly furnish all necessary facilities, labor, and material, to make such an examination. If such Work is found to be defective in any respect, defray all expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the cost of examination and restoration of the Work will be considered a change in the Work to be paid for in accordance with applicable provisions of the Contract.
- E. Operation Responsibility: Assume full responsibility for the proper operation of equipment during tests and instruction periods. Make no claim for damage which may occur to equipment prior to the time when the OWNER accepts the Work.
- F. Rejection Prior to Warranty Expiration: If at anytime prior to the expiration of any applicable warranties or guarantees, equipment is rejected by the OWNER, repay to the OWNER all sums of money received for the rejected equipment on progress certificates or otherwise on account of the Contract lump sum prices, and upon the receipt of the sum of money, OWNER will execute and deliver a bill of sale of all its rights, title, and interest in and to the rejected equipment. Do not remove the equipment from the premises of the OWNER until the OWNER obtains from other sources, equipment to take the place of that rejected. The OWNER hereby agrees to obtain other equipment within a reasonable time and the CONTRACTOR agrees that the OWNER may use the equipment furnished by the CONTRACTOR without rental or other charge until the other new equipment is obtained.

1.4 INSPECTION OF MATERIALS

- A. Premanufacture Notification: Give notice in writing to the ENGINEER sufficiently in advance of the commencement of manufacture or preparation of materials especially manufactured or prepared for use in or as part of the permanent construction. When required, notice to include a request for inspection, the date of commencement, and the expected date of completion of the

manufacture or preparation of materials. Upon receipt of such notice, ENGINEER will arrange to have a representative present at such times during the manufacture or testing as may be necessary to inspect the materials, or will notify CONTRACTOR that the inspection will be made at a point other than the point of manufacture or testing, or that the inspection will be waived. Comply with these provisions before shipping any materials. Such inspection will not constitute a release from the responsibility for furnishing materials meeting the requirements of the Contract Documents.

B. Testing Standards: Tests of electrical and mechanical equipment and appliances shall be conducted in accordance with recognized, applicable test codes except as may otherwise be stated herein.

1.5 QUALITY CONTROL

A. Testing

1. Field and Laboratory

- a. Provide personnel to assist the ENGINEER in performing the following periodic observation and associated services.

- (1) Masonry: Sample and test mortar and grout; inspect placement of grouting.

- b. When specified in Divisions 2 through 16 of the Contract Documents, provide an independent laboratory testing facility to perform required testing. Qualify the laboratory as having performed previous satisfactory work. Prior to use, submit to the ENGINEER for approval.

- c. Cooperate with the ENGINEER and laboratory testing representatives. Provide at least 24 hours notice prior to when specified testing is required. Provide labor and materials, and necessary facilities at the site as required by the ENGINEER and the testing laboratory.

- d. Provide an independent testing agency, a member of the National Electrical Testing Association, to perform inspections and tests specified in Division 16 of these Specifications.

2. Equipment: Coordinate and demonstrate test procedures as specified in the Contract Documents or as otherwise required during the formal tests.

3. Pipeline and Other Testing: Conform to test procedures and requirements specified in the appropriate Specification Section.

B. Reports

1. Certified Test Reports: Where transcripts or certified test reports are required by the Contract Documents, meet the following requirements:
 - a. Before delivery of materials or equipment submit and obtain approval of the ENGINEER for all required transcripts, certified test reports, certified copies of the reports of all tests required in referenced specifications or specified in the Contract Documents. Perform all testing in an approved independent laboratory or the manufacturer's laboratory. Submit for approval reports of shop equipment tests within thirty days of testing. Transcripts or test reports are to be accompanied by a notarized certificate in the form of a letter from the manufacturer or supplier certifying that tested material or equipment meets the specified requirements and the same type, quality, manufacture and make as specified. The certificate shall be signed by an officer of the manufacturer or the manufacturer's plant manager.
2. Certificate of Compliance: At the option of the ENGINEER, or where not otherwise specified, submit for approval a notarized Certificate of Compliance. The Certificates may be in the form of a letter stating the following:
 - a. Manufacturer has performed all required tests
 - b. Materials to be supplied meet all test requirements
 - c. Tests were performed not more than one year prior to submittal of the certificate
 - d. Materials and equipment subjected to the tests are of the same quality, manufacture and make as those specified
 - e. Identification of the materials

1.6 COSTS OF INSPECTION

- A. OWNER's Obligation: Initial inspection and testing of concrete, mortar, and grout furnished under this Contract, if required, will be performed by the OWNER or his authorized Representatives or inspection bureaus without cost to the CONTRACTOR. If subsequent testing is necessary due to failure of the initial tests or because of rejection for noncompliance, reimburse the OWNER for expenditures incurred in making such tests.
- B. CONTRACTOR's Obligation: Include in the Contract Price, the cost of all shop and field tests of equipment and other tests required by the Contract Documents except those tests described above under "OWNER's Obligation". The OWNER

may perform tests on any material or equipment furnished under this Contract at any time during the Contract. If tests performed by the OWNER result in failure or rejection for noncompliance, reimburse the OWNER for expenditures incurred in making such tests. Tests performed by the OWNER shall prevail in determining compliance with Contract requirements.

C. Reimbursements to OWNER:

1. Materials and equipment submitted by the CONTRACTOR as the equivalent to those specifically named in the Contract may be tested by the OWNER for compliance. Reimburse the OWNER for expenditures incurred in making such tests on materials and equipment which are rejected for noncompliance.
2. Reimburse OWNER for the costs of any jobsite inspection between the hours of 7:00 p.m. and 6:00 a.m and on weekends and holidays.
3. Reimburse OWNER for all costs associated with Witness Tests which exceed 5 Calendar Days per kind of equipment.

1.7 ACCEPTANCE TESTS

A. Preliminary Field Tests: As soon as conditions permit, furnish all labor and materials and services to perform preliminary field tests of all equipment provided under this Contract. If the preliminary field tests disclose that any equipment furnished and installed under this Contract does not meet the requirements of the Contract Documents, make all changes, adjustments and replacements required prior to the acceptance tests.

B. Final Field Tests: Upon completion of the Work and prior to final payment, subject all equipment, piping and appliances installed under this Contract to specified acceptance tests to demonstrate compliance with the Contract Documents.

1. Furnish all labor, fuel, energy, water and other materials, equipment, instruments and services necessary for all acceptance tests.
2. Conduct field tests in the presence of the ENGINEER. Perform the field tests to demonstrate that under all conditions of operation each equipment item:
 - a. Has not been damaged by transportation or installation
 - b. Has been properly installed
 - c. Has been properly lubricated
 - d. Has no electrical or mechanical defects
 - e. Is in proper alignment
 - f. Has been properly connected

- g. Is free of overheating of any parts
- h. Is free of all objectionable vibration
- i. Is free of overloading of any parts
- j. Operates as intended

3. Operate work or portions of work for a minimum of 100 hours or 14 days continuous service, whichever comes first.

C. Failure of Tests: If the acceptance tests reveal defects in material or equipment, or if the material or equipment in any way fails to comply with the requirements of the Contract Documents, then promptly correct such deficiencies. Failure or refusal to correct the deficiencies, or if the improved materials or equipment, when tested again, fail to meet the guarantees or specified requirements, the OWNER, notwithstanding its partial payment for work and materials or equipment, may reject said materials or equipment and may order the CONTRACTOR to remove the defective work from the site at no addition to the Contract Price, and replace it with material or equipment which meets the Contract Documents.

1.8 FAILURE TO COMPLY WITH CONTRACT

A. Unacceptable Materials: If it is ascertained by testing or inspection that the material or equipment does not comply with the Contract, do not deliver said material or equipment, or if delivered remove it promptly from the site or from the Work and replace it with acceptable material without additional cost to the OWNER. Fulfill all obligations under the terms and conditions of the Contract even though the OWNER or the OWNER's Authorized Representatives fail to ascertain noncompliance or notify the CONTRACTOR of noncompliance.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01500
CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. General Requirements
- B. Use of Existing Facilities
- C. Temporary Construction
- D. Security
- E. Temporary Controls

1.2 GENERAL REQUIREMENTS

- A. Plant and Facilities: Furnish, install, maintain and remove all false work, scaffolding, ladders, hoistways, braces, pumping plants, shields, barricades, drains, and the like, any of which may be needed in the construction of any part of the Work and which are not herein described or specified in detail. Accept responsibility for the safety and efficiency of such works and for any damage that may result from their failure or from their improper construction, maintenance or operation.
- B. First Aid: Maintain a readily accessible, completely equipped first aid kit at each location where work is in progress.
- C. Safety Responsibility: Accept sole responsibility for safety and security at the site. Indemnify and hold harmless the OWNER and the OWNER's Authorized Representatives, including Greeley and Hansen, for any safety violation, or noncompliance with governing bodies and their regulations, and for accidents, deaths, injuries, or damage at the site during occupancy or partial occupancy of the site by CONTRACTOR's forces while performing any part of the Work.
- D. Hazard Communication: Furnish two copies of the CONTRACTOR's Hazard Communication Program required under OSHA regulations before beginning on site activities. Furnish two copies of amendments to Hazard Communications Program as they are prepared.

1.3 USE OF EXISTING FACILITIES

- A. Following facilities are available to the CONTRACTOR during construction:
 - 1. Rolling overhead door (for equipment entrance)
 - 2. 5-ton manually operated bridge crane and hoist (up to rated capacity)
 - 3. Sanitary facilities
 - 4. Potable water
 - 5. Electricity (110 V)
- B. Use of Existing Facilities: The use of these facilities is at the discretion of the OWNER and use will be rescinded if misuse is noted. In the event of damage to these facilities by the CONTRACTOR, promptly repair and restore service at no cost to the OWNER.

1.4 SECURITY

- A. Preservation of Property:
 - 1. Preserve from damage, all property along the line of the Work, in the vicinity of or in any way affected by the Work, the removal or destruction of which is not called for by the Drawings. Preserve from damage, public utilities, trees, lawn areas, building monuments, fences, pipe and underground structures, and public streets. Note: Normal wear and tear of streets resulting from legitimate use by the CONTRACTOR are not considered as damage. Whenever damages occur to such property, immediately restore to its original condition. Costs for such repairs are incidental to the Contract.
 - 2. In case of failure on the part of the CONTRACTOR to restore property or make good on damage or injury, the OWNER may, upon 24 hours written notice, proceed to repair, rebuild, or otherwise restore such property as may be deemed necessary, and the cost thereof will be deducted from any moneys due or which may become due the CONTRACTOR under this Contract. If removal, repair or replacement of public or private property is made necessary by alteration of grade or alignment authorized by the OWNER and not contemplated by the Contract Documents, the CONTRACTOR will be compensated, in accordance with the General and Supplementary Conditions, provided that such property has not been damaged through fault of the CONTRACTOR or the CONTRACTOR's employees.
- B. Miscellaneous Structures: Assume and accept responsibility for all injuries or damage to building foundations and walls, or other structures of any kind met with during the prosecution of the Work. Assume and accept liability for damages to public or private property resulting therefrom.

1.5 TEMPORARY CONTROLS

A. During Construction:

1. Keep the site of the Work and adjacent premises free from construction materials, debris, and rubbish. Remove this material from any portion of the site if such material, debris, or rubbish constitutes a nuisance or is objectionable.
2. Remove from the site all surplus materials and temporary structures when they are no longer needed.
3. Neatly stack construction materials when not in use. Promptly remove splattered concrete, asphalt, oil, paint, corrosive liquids, and cleaning solutions from surfaces to prevent marring or other damage.
4. Properly store volatile wastes in covered metal containers and remove from the site daily.
5. Do not bury or burn on the site or dispose of into storm drains, sanitary sewers, streams, or waterways, any waste material. Remove all wastes from the site and dispose of in a manner complying with applicable ordinances and laws.

B. Smoke Prevention:

1. Strictly observe all air pollution control regulations.
2. Open fires will be allowed only if permitted under current ordinances.

C. Noises:

1. Maintain acceptable noise levels in the vicinity of the Work. Limit noise production to acceptable levels by using special mufflers, barriers, enclosures, equipment positioning, and other approved methods.
2. Supply written notification to the OWNER sufficiently in advance of the start of any work which violates this provision. Proceed only when all applicable authorizations and variances have been obtained in writing.

D. Dust Control:

1. Take measures to prevent unnecessary dust. Adequately protect buildings or operating facilities which may be affected adversely by dust.

E. Hours of Operation:

1. Limit construction activities to Monday through Friday, 7:30 to 4:00 pm, except as noted in Section 01110 for station power shut downs. See Section 01110 for additional constraints.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01600
MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Description
- B. Substitutions
- C. Manufacturer's Written Instructions
- D. Transportation and Handling
- E. Storage, Protection and Maintenance
- F. Manufacturer's Field Quality Control Services
- G. Post Startup Services
- H. Special Tools and Lubricating Equipment
- I. Lubrication

1.2 DESCRIPTION

- A. Proposed Manufacturers List: Within 15 calendar days of the date of the Notice to Proceed, submit to the ENGINEER a list of the names of proposed manufacturers, materialmen, suppliers and subcontractors, obtain approval of this list by OWNER prior to submission of any shop drawings. Upon request submit evidence to ENGINEER that each proposed manufacturer has manufactured a similar product to the one specified and that it has previously been used for a like purpose for a sufficient length of time to demonstrate its satisfactory performance.
- B. Furnish and install Material and Equipment which meets the following:
 - 1. Conforms to applicable specifications and standards.
 - 2. Complies with size, make, type, and quality specified or as specifically approved, in writing, by ENGINEER.
 - 3. Will fit into the space provided with sufficient room for operation and maintenance access and for properly connecting piping, ducts and services,

as applicable. Make the clear spaces that will be available for operation and maintenance access and connections equal to or greater than those shown and meeting all the manufacturers' requirements. Make all provisions for installing equipment furnished at no increase in Contract Price.

4. Manufactured and fabricated in accordance with the following:
 - a. Design, fabricate, and assemble in accordance with best engineering and shop practices.
 - b. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
 - c. Provide two or more items of same kind identical, by same manufacturer.
 - d. Provide materials and equipment suitable for service conditions.
 - e. Adhere to equipment capabilities, sizes, and dimensions shown or specified unless variations are specifically approved, in writing, in accordance with the Contract Documents.
 - f. Adapt equipment to best economy in power consumption and maintenance. Proportion parts and components for stresses that may occur during continuous or intermittent operation, and for any additional stresses that may occur during fabrication or installation.
 - g. Working parts are readily accessible for inspection and repair, easily duplicated and replaced.
5. Use material or equipment only for the purpose for which it is designed or specified.

1.3 SUBSTITUTIONS

- A. Substitutions:
 1. CONTRACTOR'S requests for changes in equipment and materials from those required by the Contract Documents are considered requests for substitutions and are subject to CONTRACTOR'S representations and review provisions of the Contract Documents when one of following conditions are satisfied:
 - a. Where request is directly related to an "or equal" clause or other language of same effect in Specifications.

- b. Where required equipment or material cannot be provided within Contract Time, but not as result of CONTRACTOR'S failure to pursue Work promptly or to coordinate various activities properly.
 - c. Where required equipment or material cannot be provided in manner compatible with other materials of Work, or cannot be properly coordinated therewith.
- 2. CONTRACTOR'S Options:
 - a. Where more than one choice is available as options for CONTRACTOR'S selection of equipment or material, select option compatible with other equipment and materials already selected (which may have been from among options for other equipment and materials).
 - b. Where compliance with specified standard, code or regulation is required, select from among products which comply with requirements of those standards, codes, and regulations.
 - c. "Or Equal": For equipment or materials specified by naming one or more equipment manufacturer and "or equal", submit request for substitution for any equipment or manufacturer not specifically named.

B. Conditions Which are Not Substitution:

- 1. Requirements for substitutions do not apply to CONTRACTOR options on materials and equipment provided for in the Specifications.
- 2. Revisions to Contract Documents, where requested by OWNER or ENGINEER, are "changes" not "substitutions".
- 3. CONTRACTOR'S determination of and compliance with governing regulations and orders issued by governing authorities do not constitute substitutions and do not constitute basis for a Change Order, except as provided for in Contract Documents.

1.4 MANUFACTURER'S WRITTEN INSTRUCTIONS

A. Instruction Distribution: When the Contract Documents require that installation, storage, maintenance and handling of equipment and materials comply with manufacturer's written instruction's, obtain and distribute printed copies of such instructions to parties involved in installation, including six copies to ENGINEER.

- 1. Maintain one set of complete instructions at jobsite during storage and installation, and until completion of work.

- B. Manufacturer's Requirements: Store, maintain, handle, install, connect, clean, condition, and adjust products in accordance with manufacturer's written instructions and in conformity with Specifications.
 - 1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult ENGINEER for further instructions.
 - 2. Do not proceed with work without written instructions.
- C. Performance Procedures: Perform work in accordance with manufacturer's written instructions. Do not omit preparatory steps or installation procedures, unless specifically modified or exempted by Contract Documents.

1.5 TRANSPORTATION AND HANDLING

- A. Coordination with Schedule: Arrange deliveries of materials and equipment in accordance with Construction Progress Schedules. Coordinate to avoid conflict with work and conditions at site.
 - 1. Deliver materials and equipment in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 2. Protect bright machined surfaces, such as shafts and valve faces, with a heavy coat of food-grade grease prior to shipment.
 - 3. Immediately upon delivery, inspect shipments to determine compliance with requirements of Contract Documents and approved submittals and that material and equipment are protected and undamaged.

- B. Handling: Provide equipment and personnel to handle material and equipment by methods recommended by manufacturer to prevent soiling or damage to materials and equipment or packaging.

1.6 STORAGE, PROTECTION, AND MAINTENANCE

- A. On-site storage areas and buildings:
 - 1. Coordinate location of storage areas with ENGINEER and OWNER.
 - 2. Arrange on site storage areas for proper protection and segregation of stored materials and equipment. Provide for safe travel around storage areas and safe access to stored materials and equipment.
 - 3. Store materials such as pipe, reinforcing and structural steel, and equipment on pallets, blocks or racks, off ground.

4. Store fabricated materials and equipment above ground, on blocking or skids, to prevent soiling or staining. Cover materials and equipment which are subject to deterioration with impervious sheet coverings; provide adequate ventilation to avoid condensation.

B. Interior Storage:

1. Store materials and equipment in accordance with manufacturer's instructions, with seals and labels intact and legible.
2. Store materials and equipment, subject to damage by elements, in weathertight enclosures.
3. Maintain temperature and humidity within ranges required by manufacturer's instructions.

C. Accessible Storage: Arrange storage in a manner to provide easy access for inspection and inventory. Make periodic inspections of stored materials or equipment to assure that materials or equipment are maintained under specified conditions and free from damage or deterioration.

1. Perform maintenance on stored materials or equipment in accordance with manufacturer's instructions, in presence of OWNER or ENGINEER.
2. Submit a report of completed maintenance to ENGINEER with each Application for Payment.
3. Failure to perform maintenance, to notify ENGINEER of intent to perform maintenance or to submit maintenance report may result in rejection of material or equipment.

D. OWNER'S Responsibility: OWNER assumes no responsibility for materials or equipment stored in buildings or on-site. CONTRACTOR assumes full responsibility for damage due to storage of materials or equipment.

E. CONTRACTOR'S Responsibility: CONTRACTOR assumes full responsibility for protection of completed construction. Repair and restore damage to completed Work equal to its original condition.

F. Special Equipment: Use only rubber tired wheelbarrows, buggies, trucks, or dollies to wheel loads over finished floors, regardless if the floor has been protected or not. This applies to finished floors and to exposed concrete floors as well as those covered with composition tile or other applied surfacing.

G. Surface Damage: Where structural concrete is also the finished surface, take care to avoid marking or damaging surface. **Protect terrazzo flooring from damage by covering with ½-inch plywood in the vicinity of mechanical work, electrical**

work, and traffic. Place a layer of kraft paper under the plywood to prevent scratching of the terrazzo surface.

1.7 MANUFACTURER'S FIELD QUALITY CONTROL SERVICES

A. General:

1. Provide manufacturer's field services in accordance with this subsection for those tasks specified in other sections.
2. Provide training as specified in Section 01820.
3. Include and pay all costs for suppliers' and manufacturers' services, including, but not limited to, those specified.

B. Installation Instruction: Provide instruction by competent and experienced technical representatives of equipment manufacturers or system suppliers as necessary to resolve assembly or installation procedures which are attributable to, or associated with, the equipment furnished.

C. Installation Inspection, Adjustments and Startup Participation:

1. Provide competent and experienced technical representatives of equipment manufacturers or system suppliers to inspect the completed installation as follows.
 - a. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or for other conditions which may cause damage.
 - b. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
 - c. Verify that wiring and support components for equipment are complete.
 - d. Verify that equipment or system is installed in accordance with the manufacturer's recommendations, approved shop drawings and the Contract Documents.
 - e. Verify that nothing in the installation voids any warranty.
2. Provide manufacturer's representatives to perform initial equipment and system adjustment and calibration conforming to the manufacturer's recommendations and instructions, approved shop drawings and the Contract Documents.

3. Obtain ENGINEER'S approval before start-up of equipment. Execute start-up under supervision of applicable manufacturer's representative in accordance with manufacturers' instructions.
4. Furnish ENGINEER with three copies of the following. When training is specified, furnish the copies at least 24 hours prior to training.
 - a. "Certificate of Installation, Inspection and Start-up Services" by manufacturers' representatives for each piece of equipment and each system specified, certifying:
 - (1) That equipment is installed in accordance with the manufacturers' recommendations, approved shop drawings and the Contract Documents.
 - (2) That nothing in the installation voids any warranty.
 - (3) That equipment has been operated in the presence of the manufacturer's representative.
 - (4) That equipment, as installed, is ready to be operated by others.
 - b. Detailed report by manufacturers' representatives, for review by ENGINEER of the installation, inspection and start-up services performed, including:
 - (1) Description of calibration and adjustments if made; if not in Operation and Maintenance Manuals, attach copy.
 - (2) Description of any parts replaced and why replaced.
 - (3) Type, brand name, and quantity of lubrication used, if any.
 - (4) General condition of equipment.
 - (5) Description of problems encountered, and corrective action taken.
 - (6) Any special instructions left with CONTRACTOR or ENGINEER.
- D. Field Test Participation: Provide competent and experienced technical representatives of all equipment manufacturers and system suppliers as necessary to participate in field testing of the equipment specified in Section 01450.

E. Trouble-Free Operation: Provide competent and experienced technical representatives of all equipment manufacturers and system suppliers as necessary to place the equipment in trouble-free operation after completion of start-up and field tests.

1.8 POST START-UP SERVICES

A. General: Provide Post Start-up Services in accordance with this subsection for equipment specified in other sections.

B. Site Visit: Provide the services of an authorized service representative for each equipment manufacturer or system supplier to make a final site visit after the equipment or system has been in operation for at least 6 months, but no longer than 11 months. Furnish assistance to OWNER's operating personnel in making adjustments and calibrations required to determine that the equipment and system is operating in conformance with design, manufacturer's, and specification requirements. Instruct the personnel in a review of proper operation and maintenance procedures.

C. Certificate: Furnish "Certificate of Post Start-up Services" cosigned by ENGINEER and the manufacturer's representative, certifying that this service has been performed. Use form provided in this section, and furnish OWNER with three copies.

1.9 SPECIAL TOOLS AND LUBRICATING EQUIPMENT

A. General: Furnish, per manufacturer's recommendations, special tools required for checking, testing, parts replacement, and maintenance. (Special tools are those which have been specially designed or adapted for use on parts of the equipment, and which are not customarily and routinely carried by maintenance mechanics.)

B. Time of Delivery: Deliver special tools and lubricating equipment to OWNER when unit is placed into operation and after operating personnel have been properly instructed in operation, repair, and maintenance of equipment.

C. Quality: Provide tools and lubricating equipment of a quality meeting equipment manufacturer's requirements.

1.10 LUBRICATION

A. General: Where lubrication is required for proper operation of equipment, incorporate in the equipment the necessary and proper provisions in accordance with manufacturer's requirements. Where possible, make lubrication automated and positive.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

CERTIFICATE OF INSTALLATION, INSPECTION AND START-UP SERVICES

Project _____

Equipment _____

Specification Section _____

Contract _____

I hereby certify that the named equipment has been inspected, adjusted and operated by the Manufacturers' Representative and further certify:

1. That the equipment is installed in accordance with the manufacturer's recommendations, approved shop drawings and the Contract Documents.
2. That nothing in the installation voids any warranty.
3. That equipment has been operated in the presence of the manufacturer's representative.
4. That equipment, as installed, is ready to be operated by others.

MANUFACTURERS' REPRESENTATIVE

Signature _____ Date _____

Name (print) _____

Title _____

Representing _____

CONTRACTOR

Signature _____ Date _____

Name (print) _____

Title _____

Attach the detailed report called for by Specification Section 01600.

Complete and submit three copies of this form with the detailed report to ENGINEER as specified.

CERTIFICATE OF POST START-UP SERVICES

Project _____

Equipment _____

Specification Section _____

Contract _____

I hereby certify the Manufacturers' Representative has inspected this equipment, made adjustments and calibrations, and that it is operating in conformance with the design, specifications, and manufacturer's requirements. Detailed notation of improper operation with corresponding recommendations, if any, are made and attached to this form.

MANUFACTURERS' REPRESENTATIVE

Signature _____ Date _____

Name (print) _____

Title _____

Representing _____

CONTRACTOR

Signature _____ Date _____

Name (print) _____

Title _____

ENGINEER

Signature _____ Date _____

Name (print) _____

Title _____

COMMENTS:

Complete and submit three copies of this form to OWNER upon completion of 6 to 11 months reinspection as required by Specification Section 01600.

(NO TEXT FOR THIS PAGE)

SECTION 01732
CUTTING AND PATCHING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. General Requirements**
- B. Scheduling of Shutdown**

1.2 GENERAL REQUIREMENTS

- A. Coordination:** Perform all cutting, fitting or patching of the Work that may be required to make the several parts thereof join in accordance with the Contract Documents. Perform restoration with competent workmen skilled in the trade.
- B. Improperly Timed Work:** Perform all cutting and patching required to install improperly timed work, to remove samples of installed materials for testing, and to provide for alteration of existing facilities or for the installation of new Work in the existing construction.
- C. Limitations:** Except when the cutting or removal of existing construction is specified or indicated, do not undertake any cutting or demolition which may affect the structural stability of the Work or existing facilities without the ENGINEER's concurrence.

1.3 SCHEDULING OF SHUTDOWN

- A. Connections to Existing Facilities:** If any connections, replacement, or other work requiring the shutdown of an existing facility is necessary, schedule such work at times when the impact on the OWNER's normal operation is minimal. Overtime, night and weekend work without additional compensation from the OWNER, may be required to make these connections, especially if the connections are made at times other than those specified.
- B. Request for Shutdowns:** Submit a written request for each shutdown to the OWNER and the ENGINEER sufficiently in advance of any required shutdown.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 PREPARATION

- A. Safeguards: Provide all bracing, supports, and protective devices necessary to safeguard all work and existing facilities during cutting and patching operations.
- B. Location of Embedments: Employ impulse radar (non x-ray type) nondestructive testing prior to core drilling or cutting of existing walls, floors and ceilings to identify location of embedded pipes or conduits.
- C. Material Removal: Cut and remove all materials to the extent shown or as required to complete the Work. Remove materials in a careful manner with no damage to adjacent facilities. Remove materials which are not salvageable from the site.

3.2 RESTORATION

- A. Final Appearance and Finish: Restore all work and existing facilities affected by cutting operations, with new materials, or with salvaged materials acceptable to the ENGINEER, to obtain a finished installation with the strength, appearance, and functional capacity required. If necessary, patch and refinish entire surfaces.

END OF SECTION

SECTION 01740

CLEANING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Final Cleaning
- B. Final Inspection

1.2 FINAL CLEANING

A. Requirements: At the completion of work and immediately prior to final inspection, clean the entire project as follows:

1. Thoroughly clean, sweep, wash, and polish all work and equipment provided under the Contract, including finishes. Leave the structures and site in a complete and finished condition to the satisfaction of the ENGINEER.
2. Direct all subcontractors to similarly perform, at the same time, an equivalent thorough cleaning of all work and equipment provided under their contracts.
3. Remove all temporary structures and all debris, rubbish and waste material.
4. Should the CONTRACTOR not remove rubbish or debris or not clean the buildings and site as specified above, the OWNER reserves the right to have the cleaning done at the expense of the CONTRACTOR.

B. Employ experienced workers, or professional cleaners, for final cleaning.

C. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

D. In preparation for Final Acceptance, conduct final inspection of sight-exposed interior and exterior surfaces, and of concealed spaces.

E. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed interior and exterior finished surfaces. Polish surfaces so designated to shine finish.

F. Repair, patch, and touch up marred surfaces to specified finish, to match adjacent surfaces.

- G. Remove snow and ice from access to buildings.
- H. Replace air-handling filters if units were operated during construction.
- I. Clean ducts, blowers, and coils, if air-handling units were operated without filters during construction.
- J. Vacuum clean all interior spaces, including inside cabinets.
- K. Handle materials in a controlled manner with as few handlings as possible. Do not drop or throw materials from heights.
- L. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly-painted surfaces.
- M. Clean interior of all panel cabinets, pull boxes, and other equipment enclosures.
- N. Wash and wipe clean all lighting fixtures, lamps, and other electrical equipment which may have become soiled during installation.
- O. Perform touch-up painting.
- P. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.
- Q. Remove erection plant, tools, temporary structures and other materials.
- R. Remove and dispose of all water, dirt, rubbish or any other foreign substances.

1.3 FINAL INSPECTION

- A. After cleaning is complete the final inspection may be scheduled. The inspection will be done with the OWNER and ENGINEER.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01783
OPERATION AND MAINTENANCE MANUALS

PART 1 GENERAL

1.1 DESCRIPTION

A. Scope: Furnish to the ENGINEER five (5) copies of an Operation and Maintenance Manual for all equipment and associated control systems furnished and installed.

1.2 QUALITY ASSURANCE

A. Reference Codes and Specifications: No current government or commercial specifications or documents apply.

1.3 SUBMITTALS

A. Prior to the Work Reaching 50 Percent Completion, submit to the ENGINEER for approval two copies of the manual with all specified material. Submit the approval copies with the partial payment request for the specified completion. Within 30 days after the ENGINEER's approval of the two-copy submittal, furnish to the ENGINEER the remaining three (3) copies of the manual. Provide space in the manual for additional material. Submit any missing material for the manual prior to requesting certification of Final Acceptance.

1.4 FORMAT AND CONTENTS

A. Prepare and arrange each copy of the manual as follows:

1. One copy of an equipment data summary (see sample form) for each item of equipment.
2. One copy of an equipment preventive maintenance data summary (see sample form) for each item of equipment.
3. One copy of the manufacturer's operating and maintenance instructions. Operating instructions include equipment start-up, normal operation, shutdown, emergency operation and troubleshooting. Maintenance instructions include equipment installation, calibration and adjustment, preventive and repair maintenance, lubrication, troubleshooting, parts list and recommended spare parts.
4. List of electrical relay settings and control and alarm contact settings.

5. Electrical interconnection wiring diagram for equipment furnished including all control and lighting systems.
6. Furnish all O&M Manual material on 8-1/2 by 11 commercially printed or typed forms or an acceptable alternative format.

B. Organize each manual into sections paralleling the equipment specifications. Identify each section using heavy section dividers with reinforced holes and numbered plastic index tabs. Use 3-ring, slant ring, hard-back binders Type No. AVE-VS11 as manufactured by Avery Company, or equal. Binder size shall be 3-inch maximum. Punch all loose data for binding. Arrange composition and printing so that punching does not obliterate any data. Print on the cover and binding edge of each manual the project title, and manual title, as furnished and approved by the ENGINEER.

C. Leave all operating and maintenance material that comes bound by the equipment manufacturer in its original bound state. Cross-reference the appropriate sections of the CONTRACTOR's O&M manual to the manufacturers' bound manuals.

D. Label binders Volume 1, 2, and so on, where more than one binder is required. Include the table of contents for the entire set, identified by volume number, in each binder.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

Village of Orland Park
High Service Pump Upgrade

Equipment Data Summary

Equipment Name: Specification Reference:

Manufacturer:

Name:

Address:

Telephone:

Number Supplied: Location/Service:

Model No: Serial No:

Type:

Size/Speed/Capacity/Range (as applicable):

Power Requirement (Phase/Volts/Hertz):

Local Representative:

Name:

Address:

Telephone:

NOTES:

Village of Orland Park

High Service Pump Upgrade

Preventive Maintenance Summary

Equipment Name: Location:

Manufacturer:

Name:

Address:

Telephone:

Model No: Serial No:

Maintenance Task	Lubricant/Part	D W M Q SA A
------------------	----------------	--------------

O&M Manual
Reference

NOTES:

*D-Daily W-Weekly M-Monthly Q-Quarterly SA-Semi-Annual A-Annual

SECTION 01789
CONTRACT CLOSE OUT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Warranties and Bonds
- B. Record Drawings
- C. Special Tools

1.2 WARRANTIES AND BONDS

Prior to final payment deliver to the OWNER the original and one copy of all bonds, warranties, guarantees and similar documents, including those customarily provided by manufacturers and suppliers which cover a period greater than the one year correction period. Show OWNER as beneficiary of these documents.

1.3 AS-BUILT DRAWINGS

At the site keep and maintain one record copy of all Contract Documents, reference documents and all technical documents submitted in good order. On mylar tracing media, and using drafting symbols and standards consistent with the original documents, annotate Contract Drawings to show all changes made during the construction period. Annotated drawings are to be made available to ENGINEER for reference at all times.

At completion of the CONTRACT and before final payment is made, deliver to the ENGINEER one set of clearly readable, reproducible Contract Drawings reflecting all changes made during construction. Mark each drawing "As-Built Drawing" in ink.

1.4 SPECIAL TOOLS

Special tools are considered to be those tools which, because of their limited use, are not normally available but which are necessary for maintenance of particular equipment.

For each type of equipment provided under this CONTRACT, furnish a complete set of all special tools including grease guns and other lubricating devices, which may be needed for the adjustment, operation, maintenance, and disassembly of

such equipment. Furnish only tools of high grade, smooth forged alloy tool steel. Manufacture grease guns of the lever type.

Furnish and erect one or more neat and substantial steel wall cases or cabinets with flat key locks and clips or hooks to hold each special tool in a convenient arrangement.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01820

TRAINING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Training

1.2 TRAINING

- A. Training: Provide the services of knowledgeable, technically competent, factory trained specialists to instruct Pump Station personnel in the operation and maintenance of the equipment and system components listed in Paragraph B. The OWNER will furnish training classroom space.

1. Coordinate services with the OWNER, with a minimum of 30 days prior notice.
2. Provide a combination of classroom and "hands-on" instruction designed to completely familiarize operating and maintenance personnel with the systems theory, standard operating procedures, safety features and emergency procedures, and general maintenance of all components.
3. Conduct all training at the Pump Station during regular hours on weekdays.

- B. Provide training for the following:

<u>Specification</u>	<u>Equipment Name</u>	<u>Minimum Hours</u>
11217	Vertical Turbine Pumps	4

- C. Length of Training: The minimum lengths of training sessions are listed in Paragraph B. above.
- D. Credentials: Submit for approval, credentials of equipment manufacturer representatives who are to be course instructors at least 14 days prior to a proposed training session.
- E. Scheduling: Submit training outline and other information described in paragraphs G through K for approval at least 14 days prior to the proposed date for the

training sessions. Verify scheduling with the OWNER at least 14 days prior to the training sessions.

- F. Number of Copies: For each training class, provide instructional material for at least ten attendees plus five extra copies, plus duplicate copies of all audio-visual aids utilized during each training course.
- G. Training Outline Submission: Provide a proposed training outline including the topics presented in Paragraph K. Identify specific components and procedures in the proposed training outline.
- H. Training Topic Detail: Detail specific training topics. Describe "hands-on" demonstrations planned for the training. Reference training aids to be utilized in the training (i.e. video tapes, slides, transparencies) and attach where applicable.
- I. Training Handouts: Attach training handouts to the proposed training outline.
- J. Training Segment Duration: Indicate the duration of each training segment.
- K. Training Outline:
 - 1. Equipment Operation
 - a. Describe equipment's operating function.
 - b. Describe equipment's fundamental operating principles and dynamics.
 - c. Identify equipment's mechanical, electrical and electronic components and features.
 - d. Identify all support equipment associated with the operation of the subject equipment.
 - 2. Detailed Component Description
 - a. Identify and describe in detail each component's function.
 - b. Where applicable, group related components into subsystems.
 - c. Identify, and describe in detail, equipment safety features and control interlocks.
 - 3. Equipment Preventive Maintenance
 - a. Describe preventive maintenance inspection procedures required to perform and inspect the equipment in operation, and spot potential trouble symptoms (anticipate breakdowns).

- b. Outline recommended routine lubrication and adjustments (preventive maintenance).
- 4. Equipment Troubleshooting
 - a. Define recommended systematic troubleshooting procedures.
 - b. Provide component specific troubleshooting checklists.
 - c. Describe applicable equipment testing and diagnostic procedures to facilitate troubleshooting.
- 5. Equipment Corrective Maintenance
 - a. Describe recommended equipment preparation requirements.
 - b. Identify and describe the use of special tools required for maintenance of the equipment.
 - c. Describe component removal/installation and disassembly/ assembly procedures.
 - d. Perform at least two "hands-on" demonstrations of common corrective maintenance repairs.
 - e. Describe recommended measuring instruments and procedures, and provide instruction on interpreting alignment measurements, as appropriate.
 - f. Define recommended torquing, mounting, calibration, and alignment procedures and settings, as appropriate.
 - g. Describe recommended procedures to check/test equipment following corrective repair.

L. Certificate: Provide "Certificate of Instructional Services" signed by ENGINEER and equipment representative, verifying that training has been accomplished to satisfaction of all parties. Use form provided in this section, and furnish ENGINEER with three copies.

M. Final Acceptance: Training provided by manufacturers' representative, ENGINEER and OWNER does not constitute Final Acceptance.

N. Equipment Use: Use of equipment for training will not void manufacturers' or contract warranties.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

CERTIFICATE OF INSTRUCTIONAL SERVICES

Project _____

Equipment _____

Specification Section _____

Contract _____

I hereby certify the equipment Manufacturers' Representative has instructed OWNER's personnel in startup operation and maintenance of this equipment as required in the Contract Documents.

MANUFACTURER'S REPRESENTATIVE

Signature _____

Name: (print) _____

Title: _____

Representing _____

CONTRACTOR

Signature _____ Date _____

Name (print) _____

Title _____

ENGINEER

Signature _____ Date _____

Name (print) _____

Title _____

COMMENTS:

Complete and submit three copies of this form to ENGINEER upon completion of training as required by Specification Section 01820.

(NO TEXT FOR THIS PAGE)

VOPHSP

01820-6

SECTION 02220
EQUIPMENT REMOVAL AND DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: All work necessary for the removal and disposal or salvage of piping, equipment, and any other material or equipment shown or specified to be removed.
- B. Basic Procedures and Schedule: Carry out demolition so that adjacent structures and equipment, which are to remain, are not endangered. Schedule the work so as not to interfere with the day to day operation of the existing facilities. Do not block doorways or passageways in existing facilities.
- C. Additional Requirements: Provide dust control and make provisions for safety.

1.2 SUBMITTALS

- A. Provide all submittals, including the following, as specified in Division 1.
- B. Site Inspection: Visit the site and inspect all existing structures. Observe and record any defects which may exist in equipment or structures adjacent to but not directly affected by the demolition work. Provide the OWNER with a copy of this inspection record and obtain the OWNER's approval prior to commencing the demolition.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 EXAMINATION OF EXISTING DRAWINGS

- A. Drawings of existing structures and equipment will be available for inspection at the office of the OWNER.

3.2 PROTECTION

- A. General Safety: Provide warning signs, protective barriers, and warning lights as necessary adjacent to the work as approved or required. Maintain these items during the demolition period.
- B. Existing Services: Undertake no demolition work until all mechanical and electrical services affected by the work have been properly disconnected. Cap, reroute or reconnect interconnecting piping or electrical services that are to remain in service either permanently or temporarily in a manner that will not interfere with the operation of the remaining facilities.

3.3 DEMOLITION REQUIREMENTS

- A. Protection: Carefully protect all mechanical and electrical equipment against dust and debris.
- B. Removal: Remove all debris from the structures during demolition and do not allow debris to accumulate in piles.
- C. Access: Provide safe access to and egress from all working areas at all times with adequate protection from falling material.
- D. Protection: Provide adequate protective covering during demolition to protect personnel and equipment against injury or damage. Cover floor openings not used for material drops with material substantial enough to support any loads placed on it. Properly secure the covers to prevent accidental movement. **Protect terrazzo flooring from damage by covering with ½-inch plywood in the vicinity of mechanical work, electrical work, and traffic. Place a layer of kraft paper under the plywood to prevent scratching of the terrazzo surface.**
- E. Lighting: Provide adequate lighting at all times during demolition.

3.4 DISPOSAL OF MATERIALS

- A. Final Removal: Remove all debris, rubbish, scrap pieces, equipment, and materials resulting from the demolition unless otherwise indicated. Take title to all demolished materials and remove such items from the site.
- B. OWNER's Property: In addition to any items which may be shown, the following items remain the property of the OWNER. Remove carefully, without damage, all items listed or shown, and deliver to the OWNER at an off-site location identified by the OWNER. The off-site storage location will be within existing Village of Orland Park corporate limits. Off-load and position the pump and motor as directed by the OWNER. Turn over related pump equipment as part of the pump equipment for storage by the OWNER.

1. Vertical Turbine Pumps, Pump No. 1 and No. 6, including motors and all appurtenant equipment.
2. Related Pump Equipment: Discharge valve, valve operator, differential pressure switch, limit switches, and 4-inch air and vacuum valve and piping.
3. Tie Circuit Breaker.

END OF SECTION

(NO TEXT FOR THIS PAGE)

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02220-4

SECTION 02512

DISINFECTION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Disinfection of all pipelines and equipment which are to handle or carry potable water. Furnish all labor, water, chemicals and equipment and other items necessary to perform the Work, except as otherwise specified.

1.2 REFERENCES

- A. Codes and standards referred to in this Section are:

1. AWWA C652 - Disinfection of Water-Storage Facilities

1.3 QUALITY ASSURANCE

- A. Disinfection Standards: Disinfect in accordance with AWWA C652 for water storage facilities and equipment.
- B. Local Requirements: Conform disinfection procedures to local health department requirements for new water mains and structures.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 APPLICATION

- A. Disinfection Procedures for Water Storage Facilities and Equipment: Disinfect equipment and piping that will be in contact with potable water in accordance with AWWA C652, Method 2, using sodium hypochlorite.
 1. Clean all exposed surfaces and then spray or wipe the interior and exterior surface of the equipment, thoroughly wetting all surfaces that will be in contact with potable water with chlorinated water containing 200 mg/l of available chlorine. After spraying, allow the equipment to stand at least 30 minutes before placing into or admitting potable water.

3.2 VERIFICATION OF DISINFECTION

- A. Final Samples: Bacteriological samples will be taken and tested by the OWNER. If the samples are not satisfactory, repeat the entire disinfection procedure.
 - 1. Assume the expense of taking and testing additional samples until satisfactory samples are obtained.
 - 2. Assume the expense of all water for subsequent fillings of the pipelines, tanks and equipment.

END OF SECTION

SECTION 02516

LEAKAGE TESTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Testing for any signs of leakage in all pipelines and structures required to be watertight.
- B. Operation of Existing Facilities: Conduct all tests in a manner to minimize as much as possible any interference with the day-to-day operations of existing facilities or other contractors working on the site.

1.2 PERFORMANCE REQUIREMENTS

- A. Written Notification of Testing: Provide written notice when the work is ready for testing, and make the tests as soon thereafter as possible.
 - 1. Personnel for reading meters, gauges, or other measuring devices, and water for testing will be furnished by the OWNER.
 - 2. Furnish all other labor, equipment, and materials, including meters, gauges, blower, pumps, compressors, fuel, water, bulkheads and accessory equipment.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 PRESSURE TESTS OF EXPOSED PLANT PIPING

- A. Testing: Pressure test exposed pipelines for leakage by maintaining the fluid in the pipe at the specified pressure for a period of 60 minutes. Examine all accessible joints during the test. Stop all visible leakage.
- B. Test Pressures: Test the various pipelines at the test pressures specified in Section 15109.

3.2 VALVE TESTING

- A. Testing: Operate valves in the section under test through several complete cycles of closing and opening. In addition, have the test pressure for each valve, when in the closed position, applied to one side of the valve only. Test each end of the valve in this manner.
- B. Test Pressure: Test each valve at the same test pressure as that specified for the pipe in which the valve is installed.
- C. Leakage: Stop all external and internal leakage through the valves.
- D. Movement: Stop all valve movement or structural distress.

3.3 REPAIR OF PIPING LEAKS

- A. Procedures: Repair leaks as follows:
 1. Replace broken pipe or joint assemblies found to leak.
 2. When leakage occurs in excess of the specified amount, locate and repair defective valves, pipe, cleanouts or joints.
 3. If the excess leakage is determined to be caused by defective materials furnished, improper workmanship, or damage to the materials, make the necessary repairs or replacements at no addition to the Contract Price.
 4. If defective portions cannot be located, remove and reconstruct as much of the original work as necessary to obtain piping that meets the leakage requirements specified herein and retest, all at no addition to the Contract Price.

END OF SECTION

SECTION 03600

GROUT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Furnishing non-shrink grout under equipment bases.

1.2 REFERENCES

A. Codes and Standards Referred to in this Section:

1. ASTM C 109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 in. [or 50 mm] Cube Specimens).
2. CRD C-621 - Specification for Non-Shrink Grout.

1.3 SUBMITTALS

A. Provide all submittals, including the following, as specified in Division 1:

1. Submit notarized certificate of manufacturer as evidence that pre-packaged non-shrink grout conforms to specified requirements. Include manufacturer's literature.
2. Submit the following test reports:
 - a. Compression tests, on mortar cubes for non-shrink grout, as specified in Section 3.3.
3. Test results showing that in projects of similar scope and size, the effective bearing area (EBA) under equipment bases is between 95 and 100 percent.
4. Detailed field records for ready-mixed grout.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle all products and materials as specified in Division 1, and as follows:
 1. Pre-packaged, Non-shrink Grout: Deliver in unopened packages. Store in a dry place protected from moisture.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Non-Shrink Grout:
 1. Furnish a flowable, pre-packaged non-shrink grout without dependence on gas expansion forces or enlargement of metal particles for its non-shrinkage characteristics and conforming to CRD C-621.
 2. Furnish one of the following:
 - a. Masterflow 928, as manufactured by MasterBuilders, Incorporated.
 - b. Multipurpose, as manufactured by Symons Corporation.
 - c. Sika grout 212, as manufactured by Sika Corporation.
 - d. Or equal.
- B. Compressive Strength: Provide, as a minimum, the grout with the following compressive strength: 2,700 psi for 7-day test, 4,000 psi for 28-day test.

PART 3 EXECUTION

3.1 INSPECTION

- A. Substrate Condition:

Examine the substrate and conditions under which grout is to be placed and notify the ENGINEER, in writing, of unsatisfactory conditions. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to the OWNER.

3.2 INSTALLATION

- A. General:

1. Place grout as shown and in accordance with the manufacturer's instructions. Notify the OWNER if manufacturer's instructions conflict

with the Specifications. Do not proceed with installation until directed by the OWNER.

2. Drypacking will not be permitted.
3. Have manufacturers of proprietary products make available upon 72 hours notification the services of a qualified, full time employee to aid in assuring proper use of the product under job conditions. The cost of this service, if any, shall be borne by the Contractor.

B. Equipment Bases:

1. After shimming equipment to proper grade, securely tighten anchor bolts. Properly form around the base plates allowing sufficient room around the edges for placing the grout. Adequate depth between the bottom of the base plate and the top of concrete base must be provided to assure that the void is completely filled with the non-shrink grout.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 05500
METAL FABRICATIONS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: steel items, bolts and accessories required for the attachment of items specified herein, and other items shown, to complete the Work in accordance with the Contract Documents.

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. ASTM A 36/A36 - Structural Steel
2. ASTM A 193/A193M
Grade MT316 - Stainless Steel Bolts
3. ASTM A 283/A283M - Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes and Bars

1.3 SUBMITTALS

A. General: Provide all submittals, including the following, as specified in Division 1.

B. Mill Reports: Submit certified mill reports for ASTM A 36 steels as requested. Submit certified mill reports for all steels other than ASTM A 36.

C. Setting Plans: Submit complete setting plans for use by others to set anchor bolts, setting plates, and the like.

PART 2 PRODUCTS

2.1 MATERIALS

A. Standards: Provide metal items meeting the requirements of the following standards:

1. Structural steel, shapes and plates, except plates to be bent or cold-formed ASTM A 36/A36M
2. Steel plates, bent or cold-formed ASTM A 283/A283M, Grade C

PART 3 EXECUTION

3.1 INSTALLATION

- A. General: Install metal fabrications in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1.
- B. Alignment: Install all items and set plumb, square, level and true at their proper elevation and plane, and located in true alignment with all Work.
- C. Templates: Furnish templates where shown, specified or required. Furnish shim plates, or developed fills where necessary to transfer load, where required, to obtain proper fit and alignment. Accurately set anchor bolts using a steel or wood template as necessary to maintain elevation and location.

- D. Fastening: Securely anchor, ready for operation in every respect. Unless indicated otherwise, fasten metalwork to solid masonry and concrete with expansion bolts and to void areas of unit masonry with toggle bolts.

3.2 PAINTING

- A. For surface preparation and painting of metal fabrications see Section 09900.

3.3 INSPECTION AND TESTS

- A. Examine metal Work after installation, painting and glazing have been completed as required. Adjust, repair and replace metalwork as required. Clean and retouch exposed surfaces of metal Work where necessary to bring the color of the finished surfaces reasonably uniform and free from scratches and other surface blemishes.
- B. Rejection of Work: Work which does not comply with the Contract Documents will not be accepted. Take sole responsibility and assume the expense of all corrective measures.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 09900

PAINTING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Preparation of surfaces, shop painting of items furnished and field painting of new piping and equipment.

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. SSPC - Steel Structures Painting Manual
2. SSPC SP 1 - Solvent Cleaning
3. SSPC SP 3 - Power Tool Cleaning
4. SSPC SP 6 - Commercial Blast Cleaning
5. SSPC SP 10 - Near-White Blast Cleaning
6. FS-TT-V-51F - Asphalt Varnish
7. NSF 61 - Drinking Water System Components - Health Effects
8. AWWA D102 - Standard for Painting Steel Water-Storage Tanks

1.3 SUBMITTALS

A. Provide all submittals, including the following, as specified in Division 1.

1. Submit manufacturer's standard color chart for color selection.
2. Where equipment is customarily shipped with a standard finish, submit samples of the proposed color and finish for approval prior to shipping.
3. Furnish affidavits from the manufacturer certifying that materials furnished conform to the requirements specified and that paint products have been checked for compatibility.

4. Submit a supplementary schedule of paint products with mil thickness, and solids by volume, including all paint applied in the shop and in the field. Provide a schedule that is in accordance with the recommendations of the paint manufacturer.
5. Furnish affidavits from the manufacturer certifying that coatings in immersion service contain no water soluble solvents or corrosion inhibitive (active) pigments with slight water solubility.

1.4 PAINTING REQUIREMENTS

- A. Shop Primed and Finished Items: Furnish the following items with the manufacturer's standard prime and finish coats applied in the shop: electric motors, electrical equipment, pressure gauges, and other instrumentation and controls equipment.
- B. Shop Primed and Field Painted Items: Furnish the following items shop primed and field painted: pumps, structural steel and fabricated metals, pipelines, hangers and supports, valves, and valve operators.
- C. Field Primed and Finished Items: Field prime and finish, where exposed to view, all items not shop primed or shop finished. This Work generally includes, but is not limited to, the following: covering over insulation on piping, electrical conduit systems, and drain piping.
- D. Unpainted Items: Do not paint the following items, unless otherwise specified: interior structural steel not exposed to view, copper tubing, and name and identification plates and tags

1.5 DELIVERY, STORAGE AND HANDLING

- A. General: Deliver, store and handle all products and materials as specified in Division 1 and as follows:
- B. Delivery and Storage: Deliver and store paint at the site from the approved manufacturer only.
- C. Packaging and Labeling: Prepare, pack and label paints, stains, varnish or ingredients of paints to be used on the job. Deliver all material to the site in original, unbroken containers.
- D. Storage: Store the painting materials at the site in accordance with applicable codes and regulations and in accordance with manufacturer's instructions. Keep the storage space clean at all times. Take every precaution to eliminate fire hazards.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted.

1. Paint - General:

a. Tnemec Co., Inc.

2. Paint - Insulation:

a. Sherwin Williams.

2.2 MATERIALS

A. General: Furnish paint and other materials of the type and quality of the manufacturer on which the painting schedule specified herein is based.

1. Provide compatible shop and field coats.
2. Provide all coats of paint for any particular surface from the same manufacturer.
3. Provide coatings, including paints, primers and materials in contact with potable water listed by NSF International under Standard 61 for materials and products in contact with potable water.
4. Provide paint of approved color as selected from the manufacturer's standard range of colors.

B. Paint Schedule: Provide all painting in accordance with the following schedule with the number of coats not less than the number shown on the schedule.

Class of Work	Primer Shop Coat	Field Coats		
		1st	2nd	3rd
Nonferrous Metal and Galvanized Steel:				
Interior		A	A	A
Steel and Iron:				
Interior	B	B*	A	A
Interior not Exposed to View	B	B*		

MATERIAL PAINTING SCHEDULE					
Class of Work	Primer Shop Coat	Field Coats			
		1st	2nd	3rd	
Submerged, Buried or Constantly Wetted	B	B*	C	C	
Concealed in Masonry	B	B*			
Exposed to Potable Water	B	B*	B	D	
Wrapped in Insulation	B	B*			
Concrete:					
Interior			C	C	
Pipe Insulation:					
Exposed			E	E	
Equipment:					
Pumps	B	B*	B	D	
Motors	B			Factory Finish	

*Touch-up bare metal with primer

C. Schedule of Paints: Alphabetical designations in the following list are given solely for the purpose of indicating the type and quality of materials desired. Equivalent material from other approved manufacturers may be submitted for approval.

<u>Symbol</u>	<u>Product Name and Number</u>	<u>Volume Solids %</u>	<u>Dry Film Thickness Mils Per Coat</u>
A	Tnemec Series 69 Hi-Build Epoxoline II	69	2.0-3.0
B	Tnemec Series 140-Pota-Pox Plus	69	4.0-6.0
C	Tnemec Series 69 Hi-Build Epoxoline II	69	4.0-5.0
D	Tnemec Series 140-WHO2 Tank White Pota-Pox Plus	69	4.0-6.0
E	Sherwin Williams Exterior Latex Satin A100 Series, Custom Color "Village of Orland Park Pumping Station Blue" at Store #3043		2.0-3.0

PART 3 EXECUTION

3.1 PREPARATION

- A. Inspection: Prior to surface preparation perform the following:
 1. Verify that surface substrate conditions are ready to receive Work as instructed by the product manufacturer.
 2. Examine specifications for all Work and become thoroughly familiar with all provisions regarding painting.
- B. Surface Preparation: After inspection and prior to painting, perform the following:
 1. Inspect all Work prior to application of any paint or finishing material.
 2. Brush and wash concrete surfaces and concrete masonry. Remove all loose dirt, free lime, form oil, curing compounds and other foreign matter by approved methods. Patch concrete surfaces requiring repair and spackle and repair surfaces to receive paint. Acid etch concrete surfaces to be painted as recommended by the manufacturer of the coating to be applied, to produce a slightly granular surface required for adherence of the paint to the concrete unless otherwise indicated. Determine that concrete and concrete masonry is thoroughly dry prior to painting.
 3. Thoroughly clean surfaces to be given protective coatings.
 4. Refinish shop-coated equipment that has scratches and abrasions.
 5. Do not begin field painting prior to approval of the surface preparation.
 6. Prepare and clean all surfaces prior to painting, as specified and required. Verify that surfaces are dry before any paint is applied. Perform special surface preparation work as directed by the manufacturer of the paint specified to be applied to the surface.
 7. Clean the surface of structural steel, exterior and interior dry surfaces of water storage tanks and steel encased in concrete, masonry or spray-on fireproofing by removing all rust, mill scale, oil, grease or dirt in accordance with Steel Structures Painting Council SSPC-SP6.
 8. Prior to painting steel and interior wet surfaces of water storage tanks, grind smooth all welds, beads, blisters or protuberances, other than identification markings and remove other imperfections. Remove all rust, mill scale, oil, grease and dirt by sandblasting in accordance with Steel Structures Painting Council Near White SSPC-SP10 unless otherwise indicated.

9. Prior to painting metals other than steel, grind smooth all welds, beads, blisters of protuberances, other than identification markings, and remove other imperfections. Solvent clean all nonferrous metals, galvanized steel and stainless steel whether shop primed or field primed, in accordance with SSPC-SP1 prior to the application of the primer.
10. Prime cleaned metal the same day immediately after sandblasting to prevent rusting.
11. Remove all adhering debris on pipe and duct covering and smooth out indentations or unsightly spots and brush clean.

3.2 INSTALLATION

- A. General: Install all painting and coatings in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1.
 1. Apply paint that is at a minimum temperature of 60 degrees F.
 2. Paint or finish all surfaces that are left unfinished by the requirements of other specifications and specified herein to be painted or finished.
 3. Paint surfaces in accordance with the material painting schedule included in this Section.
 4. Completely cover all surfaces to be painted. Cover by additional coats when color on undercoats shows through the final coat of paint, until paint is of uniform color and appearance and coverage is complete.
 5. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
 6. Provide sufficient temporary ventilation during painting operations in enclosed areas to remove moisture and solvents, and to keep the atmosphere safe from harmful or dangerous fumes and dust levels for personnel.
- B. Touch-Up Shop-Primed and Finished Items: Touch-up all damaged portions and imperfections in shop-primed and finished items. Use the same paint as used for the shop prime and finish. Prepare the surface prior to touch-up by wire brushing and sanding to remove rust, scale and loose paint.
- C. Steel Pipe: Applicable to insulated and uninsulated steel pipe. Immediately after installation, prime pipe not available with a shop coat.
- D. Shop Prime: Apply one shop coat of primer, before exposure to weather, to all structural steel, wrought metals, metal castings, mechanical equipment and

electrical equipment, and all piping specified to be field painted before exposure to the weather. Apply this shop coat as the first coat as specified in the Material Painting Schedule.

E. Field Painting: Perform field painting at the job site as follows:

1. Mix all paints and similar materials in galvanized iron pans or pails or other approved containers of adequate capacity.
2. Mix all paint thoroughly before being taken from the containers. Keep mixed while painting. Apply all ready-mixed paint exactly as received from the manufacturer without addition of any kind of drier or thinner, except as specified, to mix colors to conform to approved color schedule. Tint successive coats of paint to make various coats easily distinguishable. Tint undercoats of paint to the approximate shade of the final coat of paint.
3. Use only skilled painters on the Work, and employ specialists where required. Apply paint by brush, roller or sprayer in accordance with the manufacturer's recommendation.
4. Paint top and bottom edges of doors. Thoroughly and uniformly sand undercoats on hollow metal Work with No. 00 sandpaper or equal abrasive to remove all surface defects and provide a smooth, even surface. Do not allow brush marks or other irregularities on finished surfaces.
5. Perform painting as a continuous and orderly operation to facilitate adequate inspection. Prime coat and paint materials subject to weathering or corrosion before erection. Perform all paint application methods in accordance with the instructions of the paint manufacturer and as approved. Do not field paint equipment, such as electrical control cabinets, motors, unit heaters and similar items which are shipped with a final baked enamel finish and having received prior approval unless the finish is damaged in transit or installation. Paint access panels, pipe, pipe covering, ducts and other building appurtenances built into adjoining walls the same color as adjacent walls, unless color coding applies. Remove or protect hardware and accessories, fixtures and similar items placed prior to painting during painting and replace them upon completion of painting.
6. Paint piping up to and including the flanges attached to mechanical equipment. Paint electrical conduit up to but excluding the flexible conduit connected to equipment.
7. Paint all wall surfaces which will be concealed by equipment before equipment installation.
8. Fully protect areas under and adjacent to painted Work at all times and promptly remove dripped or spattered paint.

9. Repair refinish and repaint any adjacent surfaces that have been damaged or discolored by overspray.
10. Do not paint when the air or surface temperature is below that recommended by the manufacturer, or in dust-laden air, or until moisture on the surface has completely disappeared. If necessary, provide sufficient heating and ventilation to keep the atmosphere and all surfaces to be painted dry and warm until each coat of paint has hardened.
11. Remove any painting found defective. Touch-up and provide remedial painting as directed and as required until completion and acceptance of final Work.

F. Paint Colors: Furnish the following equipment in their respective groups to be shop or field painted in the colors herein specified.

Schedule For Equipment/Piping Color

<u>Spec. Section</u>	<u>Equipment Description (Groups)</u>	<u>Color</u>
11217	Pumping Units	Match color of existing units
15107, 15110, 15060, 15080	Steel Pipe and Fittings, Valves, Supports and Anchors, Mechanical Insulation	Match color of existing piping and appurtenances
15108	Miscellaneous Pipe and Fittings	Match color of existing piping
16220	Electric Motors	Match color of existing units

1. Provide chart of standard colors offered by each equipment manufacturer. Coordinate color selection.
2. Furnish all electrical equipment shop painted in a color selected from the manufacturer's standard colors.

3.3 CLEANING AND PAINTING

A. Touch up and restore any finish damaged. Remove paint or other finishes spilled, splashed or splattered from all surfaces taking care not to mar any surface or item being cleaned.

END OF SECTION

SECTION 11217
VERTICAL TURBINE PUMPS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Requirements for furnishing and installing two vertical turbine pumps, motors, soleplates, mounting plates, couplings, controls, and all accessories and appurtenances necessary for a complete installation including shop and field tests.

1. Furnish all pump system components from one pump manufacturer and have manufacturer assume full, undivided responsibility for the equipment and coordination of system components.

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. AWWA E101 - Vertical Turbine Pumps - Line Shaft and Submersible Types
2. ASME B16.1 - Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250, 800
3. ASTM A 48 - Specification for Grey Iron Castings
4. ASTM A 53 - Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
5. ASTM B 584 - Specification for Copper Alloy Sand Castings for General Applications
6. AWWA C 207 - Steel Pipe Flanges and Waterworks Service, Sizes 4 Inch Through 144 Inch (100 mm Through 3,600 mm)
7. Hydraulic Institute Standards.
8. ASME B40.100 - Pressure Gauges and Gauge Attachments

1.3 DEFINITIONS

- A. Total head is defined as the bowl assembly head minus the sum of all hydraulic losses in the pump, including suction inlet, column and discharge elbow losses. Include calculations detailing these losses in the pump submittal.
- B. Pump efficiency is defined as the ratio of water horsepower output to the horsepower delivered to the line shaft, expressed in percent.

1.4 SYSTEM DESCRIPTION

- A. General: Provide pumps of the vertical turbine, centrifugal, single or multistage, water lubricated, vaned diffuser, open-line shaft type, driven by an electric motor, with an above floor discharge. Mount the motor to a driver pedestal on top of the discharge head.
 1. Design the pumping equipment for installation in the spaces as shown, without appreciable revision to the piping, structure and foundation arrangement.
 2. Design the pumping equipment for complete disassembly from above the pump mounting floor and with the lifting equipment and disassembly clearances shown.
 3. Design pumping units in accordance with AWWA E101 Standard for Vertical Turbine Pumps, except as otherwise specified.
- B. Pumped Fluid: Design the pumping units to pump potable water.
- C. Starting and Stopping: Provide pumping equipment capable of starting and stopping against a closed discharge valve.
- D. Operating Conditions: Design the pumps to operate vortex free at the capacities and heads and over the range of operating conditions specified without cavitation, undue noise and vibration. Furnish pumps in accordance with the following requirements:

<u>Rating Data</u>	<u>Unit</u>
Capacity at primary rating point, gpm	4,900
Total head at primary rating point, feet	175
Maximum pump speed, rpm	1,200
Minimum pump efficiency at primary rating point, percent	84
Minimum shutoff head, feet	250
Capacity at secondary rating point No. 1, gpm	3,000
Minimum total head at secondary rating point No. 1, feet	200

<u>Rating Data</u>	<u>Unit</u>
Minimum efficiency at secondary rating point No. 1, percent	66
Capacity at secondary rating point No. 2, gpm	6,700
Minimum total head at secondary rating point No. 2, feet	100
Minimum efficiency at secondary rating point No. 2, percent	72
Low suction well water elevation, feet	663.75
High suction well water elevation, feet	692.0
Suction well floor elevation, feet (See Note 1)	657.5
Water temperature:	
Minimum, degrees F	35
Maximum, degrees F	70
Motor horsepower	300
Maximum weight:	
Pump, pounds	10,000
Motor, pounds	10,000

Note 1: Field verify, see section 1.4.H.

- E. Pump Curve: Design each pump to have a continuously rising characteristic curve from any operating point specified to shutoff. Design the characteristic curve to pass through the rating point and to meet or exceed the heads and the capacities specified, all within the Hydraulic Institute test tolerances.
- F. Natural Frequencies: Provide the pump and drive as installed with no natural frequencies occurring within 25 percent of any exciting frequency for the specified speeds. Exciting frequencies are periodic forces that may occur as the result of unbalance (one times rotation), misalignment (two times rotational), vane pass (multiples of vane numbers), etc.
- G. Reverse Speed: Provide the drive with a nonreverse ratchet.
- H. Field Investigations: Verify the depth of each suction well by measuring the distance from the operating floor to the top of the suction well slab. Perform measurement at the suction well access hatches. Use a plumb bob and string. Disinfect prior to insertion into the suction well. Incorporate field measurements into the high service pump shop drawings.

1.5 SUBMITTALS

- A. General: Include all submittals, including the following, as specified in Division 1.

B. Shop Drawings: Submit shop drawings, including arrangement and erection drawings of the equipment and equipment operating characteristics. Include the following:

1. Certified pump performance curves for full speed. Include on each curve total head, brake horsepower, pump efficiency, best efficiency point, and net positive suction head required, all plotted as a function of capacity from shut off to the maximum pumping capacity
2. Calculations detailing all hydraulic losses in the pump, including suction inlet, column and discharge elbow losses
3. General arrangement drawing of pump and motor. Include equipment weights, foundation loads, soleplate, mounting plate, anchor methods and materials
4. Pump cross section drawings including parts lists and materials of construction
5. Motor drawing and performance characteristics
6. Shop test procedures complete with instrument calibration data
7. Spare parts list
8. Painting procedure

C. Quality Control Submittals: Submit certified copies of shop test data and curves.

D. Operation and Maintenance: Submit pumping equipment operation and maintenance manuals. Include as a minimum the following data:

1. Lubrication schedule
2. Recommended preventative maintenance procedures and schedules
3. Recommended spare parts
4. Parts list by generic title, material of construction, and manufacturer's identification number
5. Disassembly and reassembly instructions
6. Recommended troubleshooting and startup procedures
7. Electrical schematics

8. List of special tools and description of use
9. Motor storage and installation instructions

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle all products and materials as specified in Division 1. Store new pump equipment in the pump station as directed by the OWNER.

1.7 SPARE PARTS AND TOOLS

- A. General: Furnish the following spare parts for each pumping unit:

1. One set of bearings
2. One set of gaskets and "O" rings
3. One set of shaft sleeves
4. One set of packing
5. One set of wearing rings
6. One set of motor bearings

Note: One set means all those items necessary for a complete pumping unit.

- B. Identification: Plainly tag and mark spare parts for identification and reordering, and properly box spare parts.
- C. Special Tools: Furnish a complete set of special wrenches and other special tools required for the removal, dismantling, reassembling and maintaining the pumping units. Provide tools of forged steel, case hardened, and full finished. Furnish special tools in a metal tool case with a handle and provisions for padlocking.
- D. Lifting Devices: Provide lifting lugs or any special lifting devices necessary for pumping unit installation, removal and dismantling.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted.
 1. Vertical Turbine Pumps
 - a. Peerless
 - b. Weir-Floway
 - c. Flowserv

2.2 GENERAL CONSTRUCTION

- A. Fasteners: Provide stainless steel fasteners, bolts, nuts and washers where exposed to the pumped liquid or where bolts or studs engage tapped holes.
- B. Component Joints: Provide machined metal-to-metal joints on component parts that are assembled together. Furnish machined rabbet fits on component part joints as required to provide automatic alignment of rotating parts.

2.3 PUMP BOWL

- A. Suction Bell: Fit the pump with a suction bell which is flared for smooth and efficient flow to the impeller. Construct bell of cast iron ASTM A 48 Class 30.
- B. Suction Bell Bearing: Support the suction bell bearing by vanes which are cast integrally with the suction bell and are streamlined to minimize hydraulic losses. Proportion the suction bell bearing to have a length to diameter ratio of not less than 2. Provide a protecting collar made of bronze to exclude solids or foreign matter from entering the bearing.
- C. Discharge Bowl: Fit the discharge bowl above the impeller with smooth curved diffusion vanes designed to straighten the flow and regain the velocity head. Construct discharge bowl of cast iron ASTM A 48 Class 30.
- D. Discharge Bowl Bearing: Provide the discharge bowl with an integral central hub which is accurately machined for the discharge bowl bearing. Proportion the bowl bearing to have a length to diameter ratio of not less than 2.

2.4 COLUMNS, DISCHARGE ELBOW AND DRIVER PEDESTAL

- A. Columns: Construct the pump column of fabricated steel pipe with flanged connections using welded steel flanges capable of supporting the bowl assembly. Base column diameter on capacity and conformance to AWWA E101. Provide a wall thickness of not be less than Schedule 40 pipe for columns up to 10 inches in diameter and not less than 3/8 inches for columns 12 inches in diameter and larger. Limit the column sections to not more than a maximum length of 8 feet.
- B. Bearing Support Spiders: For bearing support spiders welded integral with the discharge column, machine concentric with the flange rabbet fits. For bearing support spiders furnished as separate assemblies, design with machined rabbet fits to provide automatic alignment.
- C. Discharge Elbow: Construct discharge elbows of the above - floor type of one piece cast iron ASTM A 48 Class 30 type or fabricated steel ASTM A 53 Grade B with an integral support plate and ribs as required to support the drive, pump bowls and transmit all loads to the foundation with minimum vibration. Make wall thickness to not less than that of the discharge column. Fit the discharge elbow

with a discharge flange with the dimensions of ANSI B16.1, Class 125 for cast iron or AWWA C207 Class D for steel.

D. Driver Pedestal: Construct a driver pedestal of one piece cast iron ASTM A 48 Class 30 or fabricated steel ASTM A 53 Grade B of adequate height to permit access to the rigid adjustable coupling and to permit seal box maintenance. Provide driver pedestal sufficient to support the drive and transmit all loads with a minimum vibration.

2.5 IMPELLER

A. Construction: Provide enclosed impellers of one piece, constructed of bronze, ASTM B 584 Alloy 903 or equivalent. Provide impellers with vanes of uniform spacing, rounded inlet edges, and smooth water passages. Install removable wear rings at the inlet end of the impeller and at the casing. Provide wear rings made of bronze or stainless steel, secured by a positive mechanical method to prevent loosening in any operating mode.

B. Assembly: Accurately bore and secure impeller to the shaft by a stainless steel key and locknut or locking collar so that it cannot unscrew or become loose due to torque or rotation in either direction. Provide a locknut or locking collar of stainless steel or bronze, designed such that there is no obstruction to flow.

C. Balance: Dynamically balance impeller.

2.6 SHAFT ASSEMBLY

A. General: Support the bowl shaft by no less than two bearings. Support line shaft bearings by rigid spiders spaced no greater than 8 feet apart. Design the first critical speed of the rotating assembly not less than 150 percent of either the maximum operating speed or maximum reverse run away speed, whichever is greater.

B. Shafts: Provide fully machined shafts of sufficient diameter to transmit torsional and axial loads under all specified operating conditions, including starting and shutoff, without damage. Provide shafts made of 410 or 416 stainless steel and conforming to AWWA E101, except as otherwise specified herein. Limit shaft section length to 8 feet.

C. Shaft Sleeves: Provide shaft sleeves of 400 series stainless steel hardened to 350 BHN at each intermediate lineshaft bearing and at the seal box. Secure the sleeves to the shaft by a positive mechanical method which prevents the sleeve from rotating on the shaft.

D. Intermediate Shaft Couplings: Fabricate intermediate shaft couplings of 410 or 416 stainless steel. For shafts up to 2-3/4 inch diameter, provide a threaded type coupling and machine the coupling such that the shaft ends are tightly butt fitted.

Secure the coupling so it does not come loose under reverse rotation. For shafts greater than 2-3/4 inch diameter, provide solid sleeve type couplings fitted with shaft keys and split locking rings made of stainless steel.

2.7 BEARINGS

- A. Provide bowl and line shaft bearings of high quality leaded bronze or rubber with bronze or stainless steel backing. Limit bearing spacing to 8 feet. Provide suitable lubrication grooves to adequately pass water through the bearings and distribute lubrication evenly. Pack the suction bell bearing with a water resistant grease approved for use in potable water.

2.8 STUFFING BOX

- A. Provide each pump with a stuffing box designed to reduce liquid leakage to a minimum. Construct stuffing box of cast iron and fit with a bronze split lantern ring and bronze split gland designed to facilitate adjustment and repacking. Arrange the stuffing box for flushing with the pumped fluid with no external source of water required. Properly pack stuffing boxes with suitable nonasbestos packing material. Drain stuffing box to floor drain. Exclude or plug any tapped connections for stuffing box drain in pump discharge head.

2.9 ADJUSTABLE HEAD COUPLING

- A. Connect drive unit and pump shaft with a rigid, flanged, adjustable coupling designed to permit coupling or uncoupling of the shafts at the discharge head opening. Construct coupling hubs of one piece carbon steel suitable for all transmitted loads. Fit and key the half couplings to the shafts. Provide a threaded adjusting ring to facilitate axial adjustment of the pump shaft. Furnish the couplings with rabbet fits to facilitate alignment between the coupling halves.

2.10 SOLEPLATE AND MOUNTING PLATE

- A. Provide steel sole plates or connections on pump discharge elbow to be bolted to the steel mounting plate.
- B. Furnish fabricated steel mounting plates suitable for grouting and bolting onto the existing foundation, forming a permanent installation capable of transmitting the equipment weight and operating loads to the foundation. Field verify existing anchor bolt spacing and fabricate mounting plate to match existing anchor bolt spacing. Provide 4-inch diameter opening in mounting plate for air vent.
- C. Design plates to allow the pump to be removed without disturbing the setting or anchor bolts.

2.11 ACCESSORIES

- A. Bolts and Accessories: Provide anchor bolts, nuts, washers, and accessories and any adaptor equipment necessary for mounting the pumps. Make anchor bolts, washers and nuts of Series 300 stainless steel. Provide 1/8-inch steel anchor bolt template.
- B. Small Metal Piping and Valves: Provide all small metal piping and valves necessary for seal water, lubrication, drainage, and like items made of brass or copper, furnished as integral parts of the equipment. Pipe seal water drainage and other drippings to adjacent equipment drains using copper pipe meeting the requirements of Section 15108.
- C. Pressure Gauges: Provide a 1/4-inch gauge connection on the discharge nozzle of each pumping unit and furnish each pump with a discharge pressure gauge with a range from 0 psi to 160 psi. Provide pressure gauges meeting the requirements of Section 15124.
- D. Basket Strainers: Provide a basket strainer of bronze construction for each pump to protect the pump and minimize the formation of vortices.

2.12 MOTORS

- A. General: Provide drive motors with a voltage rating at 460 volts, 3 phase, 60 hertz, meeting the requirements of Section 16220.
- B. Reverse Rotation Ratchets: Provide reverse rotation ratchets to protect the motor from reverse runaway speed.
- C. Thrust Bearing: Equip each motor with a suitable thrust bearing for the loads imposed by the axial thrust of the pump and the weight of the rotating element. Design the thrust bearing to operate without any external means of cooling.

2.13 CONTROLS AND OPERATION

- A. Upon starting, the discharge valve will open when the differential pressure across the discharge valve exceeds 5 psig (pump discharge pipe pressure minus station discharge header pressure). Under normal operating conditions with the pump discharge valve open, this will correspond to a pressure in the pump discharge piping of not more than 85 psig
- B. Pump shut-down sequence will be initiated by closing the discharge valve. When the valve is fully closed, as detected by a limit switch, the pump will be shut off.

2.14 SOURCE QUALITY CONTROL

- A. Shop Test: Perform a certified shop test on each pumping unit using a calibrated factory test motor. Perform tests in accordance with the test code of the Hydraulic Institute, except as modified herein.
 - 1. Test each pump with its complete bowl and discharge head as furnished for the installation. Bowl head, bowl efficiency and stage testing are not permitted. If the pump cannot be tested at its full length, then allowance is to be made in the head and efficiency for column and bearing support losses not included.
 - 2. When the absolute power input to the pump is determined by electrical input measurement to the driver, use the true efficiency of the driver. Determine the true efficiency through measurement of electrical energy input and mechanical energy output by means of a prony brake or calibrated dynamometer.
 - 3. Test pumps to determine compliance with the operating conditions specified. Perform tests at rated speed and determine curves of head, brake horsepower, and pump efficiency as a function of capacity. Take a minimum of ten points including shutoff. Take at least one point of the ten as near as possible to each specified condition of head and capacity, one at or slightly above the maximum head specified, one at the minimum head specified and one at the rating. Express capacity in gallons per minute and total head in feet of water on the curves. Speed correct the data and curves to the actual motor speed for the horsepower required at the rated conditions.
 - 4. Subject each pump bowl in the shop to a hydrostatic test. Apply a test pressure not less than 1-1/2 times the shutoff head of the pump as shown by the characteristic curve. Under this test pressure, verify that no part shows undue deflection, sign of leakage or other defects.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install equipment in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1.
- B. Completely assemble pumping units in the shop to guarantee proper fit and alignment. Disassemble the units to the minimum extent required for shipment and field installation.
- C. Install all piping and equipment necessary for proper complete installation of pumping units, including such items as discharge piping, gauges, air release

piping, and drain piping required to confine and conduct stuffing box drainage from pump unit to the drain piping.

3.2 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services: Furnish the services of a qualified representative of the manufacturer for a minimum of two two-day site visits to provide instruction on proper installation of the equipment, inspect the completed installation, make any necessary adjustments, participate in the startup and field testing of the equipment, and place the equipment in trouble-free operation, as specified in Division 1. Provide instruction to the pump station operating personnel in pump operation and maintenance as specified in Division 1.
- B. Tests: After installation of the pumping units, control equipment and all appurtenances, subject each unit to a field running test as specified in Division 1, under actual operating conditions. Perform field tests in the presence of the ENGINEER. Demonstrate that under all conditions of operation each unit:
 1. Has not been damaged by transportation or installation
 2. Has been properly installed
 3. Has no mechanical defects
 4. Is in proper alignment
 5. Has been properly connected
 6. Is free of overheating of any parts
 7. Is free of all objectionable vibration
 8. Is free of overloading of any parts
 9. Operates as intended

Correct any defects in the equipment or operating controls or failure to meet the requirements of the Specifications.

3.3 CLEANING AND DISINFECTION

- A. Disinfection: Clean and disinfect all surfaces of equipment that will come into contact with potable water in accordance with requirements of Section 02512.

3.4 PAINTING

- A. Paint pumps as specified in Section 09900. At the option of the manufacturer and with prior approval, the interior of the pump bowls may be shop coated with porcelain, glass, fusion epoxy or other high quality finish.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 15060
SUPPORTS AND ANCHORS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Requirements for providing all hanging and supporting devices of construction shown, specified, or required for pipelines, apparatus, and equipment other than electrical equipment.

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. ASME B16.1 - Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250, 800
2. ASME B31.1 - Power Piping (Includes Revision Service)
3. ASTM A 307 - Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength
4. MSS SP-58 - Pipe Hangers and Supports - Materials, Design and Manufacture
5. MSS SP-69 - Pipe Hangers and Supports - Selection and Application
6. MSS SP-89 - Pipe Hangers and Supports - Fabrication and Installation Practices
7. MSS SP-90 - Guidelines on Terminology for Pipe Hangers and Supports

1.3 SUBMITTALS

A. General: Provide all submittals, including the following, as specified in Division 1.

B. Shop Drawings: Submit shop drawings to show the quantity, type, design and location of all supports, hangers and anchors required.

1.4 SYSTEM DESCRIPTION

- A. General: System includes supporting devices adequate to maintain the pipelines, apparatus, and equipment in proper position and alignment under all operating and testing conditions with due allowance for expansion and contraction.
- B. Design Requirements: Design supporting devices in accordance with the best practice and provide supporting devices that are not unnecessarily heavy. Design supporting devices to accommodate loads imposed during leakage tests for the test pressures specified. Base the required strength of supporting devices on the combined weight of the piping and connected equipment, the weight of the denser of the fluids used in operations or testing and the weight of insulation where applicable. Install supports with a working safety factor of not less than 5 and conforming to the requirements of Section 05500.
- C. Provide springs where necessary. Make hangers and supports of standard design where possible and best suited for the service required. Include proper pipe protection saddles for hangers and supports on pipes which are covered with insulation. Where required, make supports screw adjustable after installation unless approved otherwise.
- D. Interference: Design all supporting devices so as to minimize interference with access and movement. Eliminate the potential for injuries due to protruding supporting devices.
- E. Sizing: Provide base piping support, hanger rod size, brackets and spacing meeting the requirements of ASME B31.1, MSS SP-58, SP-69, SP-89 and SP-90 except as modified herein.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle all products and materials as specified in Division 1.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted.
 1. Pipe hangers and supports
 - a. Grinnell Corporation, Cranston, RI
 - b. Globe Pipe Hanger Products, Inc., Cleveland, OH

2. Sheet metal shield

- a. "Thermal-Hanger Shields" by Pipe Shields Incorporated, Vacaville, CA

2.2 MATERIALS

- A. Use structural and miscellaneous steel, metal castings, steel pipe and fittings, and supports meeting the requirements of Sections 05500 and 15107.
- B. Chairs and Pipe Rolls: Use cast-iron pipe rolls or chairs. Provide pipe rolls with threaded nuts or with sockets to take threaded rods.
- C. Saddle Stands: Use adjustable saddle stands.
 1. Provide each stand with a length of steel pipe fitted at the base with standard threaded cast-iron flange or steel base plate and at the top with an adjustable saddle or roll. Bolt the base flange or plate to the floor, foundation or concrete base.
 2. Use stanchions of construction similar to the saddle stand, except fit them at the top with cast-iron pipe saddle supports or with pipe stanchion saddles with yokes and nuts.
- D. Insulation Support Requirements: At support points, protect insulated pipes by a 360 degree insert of high density, 100 psi, waterproofed calcium silicate encased in a 360 degree sheet metal shield.
 1. Make inserts of the same thickness as the adjoining pipe insulation.
 2. Provide the shield length, minimum galvanized sheet metal gauge and installation procedure in accordance with the manufacturer's recommendations.
 3. Extend insulation inserts one inch beyond the sheet metal shields on cold water lines, and jacket and vapor seal as required when the abutting insulation is installed.
- E. Expansion: Connect, support and guide piping to permit and control pipe expansion and contraction and to accommodate building expansion, contraction and settling without damage to the piping or support system.
 1. Furnish and install anchors when specified, shown, or required for holding the pipelines and equipment in position or alignment. Design anchors for rigid fastening to the structures, either directly or through brackets.

2. Provide cast-iron chair type anchors for piping with steel straps, except where anchors form an integral part of pipe fittings or where an anchor of special design is required.
3. Inserts: Provide galvanized concrete inserts.
 - a. Design inserts to permit the rods to be adjusted horizontally in one plane and to lock the rod nut or head automatically.
 - b. Recess inserts near the upper flange to receive reinforcing rods.
 - c. Design inserts so that they may be held in position during concrete placing operations. Design inserts to carry safely the maximum load that can be imposed by the rod which they engage.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install hanger and supports in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1 and Section 15109.

3.2 GALVANIZING AND PAINTING

- A. Painting: Paint hangers, supports, anchors, and similar devices as specified in Section 09900.
- B. Touch-Up Painting: Clean and touch-up painting of field welds, bolted connections and abraded areas as specified in Section 09900.

END OF SECTION

SECTION 15080
MECHANICAL INSULATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Mechanical insulation for piping.

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. ASTM C 547 - Mineral Fiber Pipe Insulation
2. ASTM C 921 - Practice for Determining the Properties of Jacketing Materials for Thermal Insulation
3. ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials

1.3 SUBMITTALS

A. General: Provide all submittals, including the following, as specified in Division 1.

B. Product Data: Submit the manufacturer's technical product data, insulation materials, fire ratings, material safety data sheets and installation instructions for each type of mechanical insulation. Submit a schedule showing the manufacturer's product number, k-value, thickness, density, and furnished accessories for each mechanical system requiring insulation.

C. Maintenance Data: Submit maintenance data and replacement material lists for each type of mechanical insulation. Include this data and product data in the maintenance manual.

1.4 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Provide insulation from firms regularly engaged in manufacture of mechanical insulation products, of the types and sizes required, whose products have been in satisfactory use in similar services for not less than 3 years.

- B. Installer's Qualifications: Use firm with at least 5 years successful installation experience on projects with mechanical insulations similar to that required for this project.
- C. Flame/Smoke Ratings: Provide composite mechanical insulation (insulation, jackets, coverings, sealers, mastics and adhesives) with flame-spread index of 25 or less, and smoke-developed index of 50 or less, as tested by ASTM E 84 (NFPA 255) method.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. General: Deliver, store and handle all products and materials as specified in Division 1 and as follows.
- B. Labeling: Deliver the insulation, coverings, cements, adhesives, and coatings to the site in containers with the manufacturer's stamp or label, affixed showing the fire hazard indexes of products.
- C. Protection: Protect the insulation against dirt, water, and chemical and mechanical damage. Do not install damaged or wet insulation and remove damaged materials from the project site.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. General: Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted.
 1. Thermal Ceramics
 2. Certainteed Corp.
 3. Knauf Fiber Glass GmbH.
 4. Johns Manville
 5. Owens-Corning Fiberglas Corp.

2.2 MATERIALS

- A. Piping Insulation: Provide fiberglass piping insulation meeting ASTM C 547, Class 1 unless otherwise indicated.
 1. Cold pipe insulation: Provide heavy duty bonded fibrous glass sectional pipe insulation with a thermal conductivity not exceeding 0.26 BTU per hour per square foot per degree F per inch thickness at 50 degrees F mean temperature. See Inside Piping Schedule in Section 15109 for insulation thickness.

2. Jackets for Piping Insulation: Provide jackets meeting the requirements of ASTM C 921, Type I.
 - a. Encase pipe fitting insulation with one-piece premolded PVC fitting covers, fastened as per the manufacturer's recommendations.
3. Accessories: Provide the following accessories:
 - a. Provide staples, bands, wires and cement as recommended by the insulation manufacturer for the applications indicated.
 - b. Provide adhesives, sealers, and protective finishes as recommended by the insulation manufacturer for the applications indicated.
 - c. Provide embossed aluminum metal end caps at the ends of pipe insulation.

PART 3 EXECUTION

3.1 INSPECTION

- A. General: Examine areas and conditions under which mechanical insulation is to be installed. Do not proceed with Work until unsatisfactory conditions have been corrected in manner acceptable for insulation installation points.

3.2 INSTALLATION

- A. General: Install piping thermal insulation products in accordance with the manufacturer's recommendations and approved shop drawings, and as specified in Division 1. Install all products in accordance with the recognized industry practices so that insulation serves its intended purpose.

B. Piping Insulation

1. Insulation Surfaces: Install the insulation materials with smooth and even surfaces. Insulate each continuous run of piping with full-length units of insulation, with a single cut piece to complete the run. Do not use cut pieces or scraps abutting each other.
2. Cleaning and Drying: Clean and dry pipe surfaces prior to insulating. Butt insulation joints firmly together to form a complete and tight fit over the surfaces to be covered.
3. Integrity: Maintain integrity of the vapor-barrier jackets on pipe insulation, and protect to prevent puncture or other damage.

4. Insulating Fittings: Cover valves, fittings and similar items in each piping system with an equivalent thickness and composition of insulation as applied to the adjoining pipe run. Install factory molded, precut or job fabricated units except where a specific form or type is indicated.
5. Penetrations: Extend piping insulation without interruption through walls, floors and similar piping penetrations, except where otherwise indicated.

3.3 EXISTING INSULATION REPAIR

- A. Repair: Repair damaged sections of existing mechanical insulation damaged during construction. Use insulation of same thickness as the existing insulation. Install a new jacket lapping and sealer over the existing insulation and paint to match the existing surface color.

3.4 PROTECTION AND REPLACEMENT

- A. Replacement: Replace damaged insulation which cannot be satisfactorily repaired, including units with vapor barrier damage and moisture saturated units.
- B. Protection: Follow methods which are required for protection of the insulation. Work during the remainder of construction period, to avoid damage and deterioration.

3.5 CLEANING AND PAINTING

- A. Field Painting: Clean and paint the insulation jacketing in accordance with the requirements of Section 09900.

END OF SECTION

SECTION 15107
STEEL PIPE AND FITTINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Requirements for providing steel pipe and fittings, except for steel pipe in buried applications, as follows:

1. Steel pipe and fittings include all fabricated and wrought steel pipe fittings. Use steel pipe only where specifically shown or specified. Provide pipe of the flanged, screwed, welded coupling joint or plain end type of the sizes and thicknesses as shown or specified.

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. AWWA C200 - Steel Water Pipe 6 In. and Larger
2. AWWA C205 - Cement-Mortar Protective Lining and Coating for Steel Water Pipe - 4 In. and Larger - Shop Applied
3. AWWA C207 - Steel Pipe Flanges for Waterworks Service - Sizes 4 In. Through 144 In.
4. AWWA C208 - Dimensions for Fabricated Steel Water Pipe Fittings
5. AWWA C210 - Liquid Epoxy Coating Systems for Interior and Exterior of Steel Water Pipelines
6. AWWA M11 - Steel Water Pipe: A Guide for Design and Installation
7. ASTM A 47 - Specification for Ferritic Malleable Iron Castings
8. ASTM A 53 - Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
9. ASTM A 181/A181M - Specification for Carbon Steel forgings, for General Purpose Piping
10. ASTM A 197 - Specification for Cupola Malleable Iron

11. ASTM A 283/A283M - Specification for Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes and Bars
12. ASTM A 307 - Specification for Carbon Steel Bolts and Studs, 50,000 psi Tensile
13. ASTM A 536 - Specification for Ductile-Iron Castings
14. ASTM D 2000 - Classification System for Rubber Products in Automotive Applications
15. ASME B16.1 - Cast Iron Flanges and Flanged Fittings
16. ASME B16.21 - Non-metallic Gaskets for Pipe Flanges
17. ASME B16.3 - Malleable Iron Threaded Fittings
18. ASME B16.5 - Steel Pipe Flanges and Flanged Fittings: NPS 1/2 through 24 with Appendixes
19. ASME B16.9 - Factory-Made Wrought Steel Butt welding Fittings
20. ASME B36.10 - Welded and Seamless Wrought Steel Pipe

1.3 SYSTEM DESCRIPTION

- A. Design Standards: Use dimensions for steel pipe in accordance with ASME B36.10, unless specified otherwise.
 1. Provide pipe of 6-inch diameter and smaller not less than Schedule 40.
 2. Provide pipe of 8- through 16-inch diameter not less than Schedule 30.
- B. Small Steel Pipe: Provide steel pipe less than 30 inches in diameter meeting the requirements of ASTM A 53.

1.4 SUBMITTALS

- A. General: Provide all submittals, including the following, as specified in Division 1.
- B. Submit the following shop drawings:
 1. Flanged, screwed, welding and mechanical coupling fittings and pipe, couplings, harnessing and special fittings. When special designs or fittings

are required, show the Work in large detail and completely describe and dimension the special or fitting.

2. Fully Dimensioned layout of pipe, fittings, couplings, sleeves, expansion joints, supports, anchors, harnessing, valves and equipment. Label pipe size, type and materials on drawing and include schedule.
3. Cross sections showing elevation of pipe, fittings, sleeves, couplings, supports, anchors, harnessing, valves and equipment.
4. Catalog data for pipe, couplings, harnessing and fittings.

C. Quality Control: Submit the following certifications:

1. Certificate of compliance for pipe, fittings, couplings, sleeves, cleanouts and harnessing.
2. Welders' certifications.

1.5 QUALITY ASSURANCE

A. Utilize certified welders, having current certificates conforming to the requirements of the ASME code to perform all welding on steel pipelines.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle pipe, fittings and couplings as specified in Division 1 and Section 15109.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted.

1. Steel pipe and fittings
 - a. U.S. Steel
 - b. American Steel Pipe/L.B. Foster
 - c. Northwest Pipe Company
2. Seamless steel welded fittings
 - a. Taylor Forge and Pipe Works

- b. Tube-Turns
 - c. Walworth
- 3. Gaskets for flanged joints
 - a. Garlock Packing Company
 - b. Crane Company
 - c. U.S. Rubber Company
- 4. Sleeve-Type Couplings
 - a. Dresser, Style 38 with Grade 27 gasket
 - b. Smith-Blair, Inc., Type 411 with Type 003 gasket
- 5. Weldolets and Threadolets
 - a. Bonney Forge and Tool Works
- 6. Expansion Joints (Short Type)
 - a. Anamet, Inc.
- 7. Coatings
 - a. Kop-Coat
 - b. Tnemec

2.2 MATERIALS

A. Fittings

- 1. Manufacture fittings for steel pipe to standard dimensions, suitable for the pressures specified. Provide steel fittings of the same or heavier wall thickness as the pipe of which they are a part.
 - a. Provide fittings used in pipelines 2-inch diameter or smaller of the screwed pattern.
 - b. Provide fittings used in pipelines 2.5-inch diameter or larger of the seamless steel welded type or flanged type, except as shown or specified otherwise.
- 2. Unions: Use screwed unions on all steel pipelines 2-inch diameter and smaller and flanged unions on pipelines 2.5-inch diameter and larger.
 - a. Provide an adequate number of unions of the screwed or flanged type in each main pipeline and each branch to facilitate the dismantling or

removal of any branch line or any part thereof or the section of the main pipe to which it connects, without disturbing adjacent branch lines or their related main pipeline.

3. **Screwed Fittings:** Provide malleable iron ASME B16.3 screwed fittings where shown or specified for steel pipelines meeting the requirements of ASTM A 197. Provide unions with brass or iron seats.
4. **Welding Fittings:** Provide butt welding fittings meeting the requirements of ASME B16.9.
 - a. Provide outlets for welded connections that are made with Weldolets of the butt welding type.
 - b. Provide outlets for threaded connections that are made with Threadolets.
5. **Fabricated Steel Fittings:** Unless otherwise shown, provide steel flange fittings meeting the requirements of ASME B16.5 for 150-pound standard, except provide flanges that are plain faced.
 - a. Fabricate steel fittings from the same plates as the pipeline of which they are a part and meet the requirements of AWWA C208, unless otherwise shown or specified.
 - b. Provide fittings and elbows that are made of pipe segments or preformed plates.
 - c. Provide reducers and increasers with the same laying length as American Standard Class 125.
 - d. Provide fabricated steel fittings with plain ends or welded flanges.
 - e. Provide tees, wyes, laterals and outlets reinforced in accordance with AWWA M11.

B. Flanges and Flanged Joints

1. **Flanges:** Unless otherwise shown, provide all flanges for steel pipe, except blind flanges, of the slip-on welding type with hubs meeting the requirements of AWWA C207 Class D and made of metal meeting the requirements of ASTM A 181 Class 60
 - a. Attach the flanges to the barrel of the pipe with two continuous fillet welds.

- b. Provide plain faced blind flanges in accordance with ASME B16.5 Class 150.
2. Flanged Joints: Make flanged joints with bolts or bolt studs with a nut on each end.
 - a. Provide bolts, stud bolts, and nuts meeting the requirements of ASTM A 307 Grade B and ASME B16.1.
 - b. Provide bolts which have a 1/4-inch projection beyond the nut when joint with gasket is assembled.
3. Gaskets: Provide rubber gaskets for flanged joints meeting the requirements of AWWA C207 as modified and supplemented herein. Provide 1/8-inch thick gaskets. Provide full face gaskets for pipe sizes 12 inches in diameter and smaller. Provide ring type gaskets for pipe larger than 12 inches in diameter.
4. Insulation: Provide insulated flanged joints as required. Provide flange insulation kits to include flange insulating gasket, flange bolt insulating sleeves, and flange bolt insulating washers.

C. Sleeve-Type Coupling

1. General: Provide couplings with rolled steel followers, steel sleeves, rubber compound gasket and high strength bolts and nuts.
2. Gasket Material: Use gaskets that are not affected by the fluid service of the pipeline.
3. Pressure Rating: Provide couplings with a minimum pressure rating equal to the test pressure of the pipeline.
4. Middle Rings: Provide middle rings without a pipe stop, and at least 1/4-inch thick and 5 inches wide for 8-inch and smaller pipe, 3/8-inch thick and 7 inches wide for 10-inch through 30-inch pipe, and 1/2 inch thick and 10 inches wide for 36-inch and larger pipe, with follower rings of the proper thickness.
5. Harnessing: Unless shown or specified otherwise, design, furnish and install harnessing for sleeve-type couplings in accordance with the applicable portions of AWWA Manual M11, Chapter 13 -Supplementary Design Data and Details, Section 13.10 - Joint Harnesses. Furnish harnessing having a design pressure equal to or greater than the test pressure of the pipeline on which it is installed.

D. Expansion

1. General: Make ample provisions for flexibility in all pipelines to compensate for expansion.
2. Expansion Device: Provide adequate expansion devices to allow the lines to expand and contract freely without damage to any part of the piping system.
 - a. Provide expansion devices in the form of expansion joints, expansion couplings, swivel or swing joints or pipe bends, and include such anchors as may be shown, specified or required to make the devices effective.
 - b. If expansion devices are not required, fabricate all runs of pipe subject to expansion shorter than their theoretical length to the extent that there is freedom to expand without increasing the stresses imposed when cold.
3. Expansion Joints: Provide expansion joints that are of the single short type and are designed for the specified test pressures. Provide expansion joints with adequate tie rods to limit the axial movement at the specified test pressures, except where noted or specified otherwise.

E. Coatings and Linings

1. General: Line and coat steel pipelines in accordance with the piping schedule.
 - a. Coat all bolts, nuts, couplings and the like after the joint has been made.
 - b. Paint in accordance with Section 09900.
 - c. Do not paint the outside of pipe and fittings that are to be concrete encased.
2. Liquid Epoxy: Where liquid epoxy lining and coating is shown, specified or required, line and coat in accordance with the requirements of AWWA C210.
3. Cement-Mortar Lining: Provide cement and mortar lining in accordance with the requirements of AWWA C205 where shown or specified.
4. Sleeve-type Couplings: Shop coat all surfaces with Dresser Red D, Smith-Blair Standard Blue Shop-coat, or equal nontoxic material compatible with the finish coatings specified. Give the inside coating of the middle ring an additional shop coat of Kop-Coat Hi-Guard epoxy or Tnemec Pota-pox.

Finish coat as specified in Section 09900 for the pipeline of which it is a part.

PART 3 EXECUTION

3.1 INSTALLATION

- A. General: Install all steel pipe and fittings in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1 and Section 15109.
- B. Insulation: Where shown or specified provide insulation, as specified in Section 15080, for pipes and fittings that are exposed to atmosphere after installation.
- C. Reducing Fittings: Use ample fittings for all changes in pipe size. Do not use bushings.

3.2 LEAKAGE TESTING

- A. Cleaning: Flush clean and test all pipes after installation.
- B. Testing: Test pipes for leaks and repair or tighten as required.
- C. Procedures: Conduct tests in accordance with Section 02516.

3.3 DISINFECTION

- A. Disinfect all pipelines that are to carry potable water before they are placed into service as specified in Section 02512.

3.4 SCHEDULES

- A. Refer to the Schedule contained in Section 15109 Erecting and Jointing Interior Pipe for information on the piping that is to be constructed using the pipe materials and methods specified herein.

END OF SECTION

SECTION 15108

MISCELLANEOUS PIPE AND FITTINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Requirements for providing miscellaneous pipe and fittings as indicated.

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. ASTM B 32 - Specification for Solder Metal
2. ASTM B 88 - Standard Specification for Seamless Copper Water Tube
3. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings (Includes Revision Service)
4. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fitting (Includes Revision Service)
5. ASME B1.20.1 - Screw Threads - Pipe Threads, General Purpose (Inch)

1.3 SUBMITTALS

A. General: Provide all submittals, including the following, as specified in Division 1.

B. Shop Drawings: Submit the following Shop Drawings.

1. Submit complete detailed shop drawings in conformance with the specified requirements.
2. Include drawings that show the piping layouts and schedules of all pipe, fittings, valves, expansion joints, flexible couplings, hangers, supports and other appurtenances.
3. When any work is of special design show in large detail and completely describe and dimension.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle all products and materials as specified in Division 1.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted.

1. Copper Pipe and Fittings:

- a. Mueller Industries, Inc., Wichita, KS
- b. Nibco, Elkhart, IN

2. Dielectric Insulating Fittings:

- a. Lochinvar, Lebanon, TN
- b. EPCO, Inc., Cleveland, OH

2.2 MATERIALS

A. Copper Pipe and Fittings

- 1. Small Copper Piping: For copper pipe 3 inches in diameter and smaller, provide Type K hard drawn copper tubing that meets ASTM B 88 requirements.
 - a. Fittings: Provide ASME B16.18, cast copper alloy or ASME B16.22 wrought copper and copper alloy fittings.
 - b. Joints: Threaded or ASTM B 32 lead-free soldered joints.
- 2. Unacceptable Uses: Do not use copper pipe with soldered joints for transporting fuel oil or other flammable or toxic liquids inside buildings.

B. Supports and Anchors: Provide all pipelines with supporting and anchoring devices as specified in Sections 15109.

C. Drip Pans: Provide drip pans constructed of 16-gauge Type 304 stainless steel.

PART 3 EXECUTION

3.1 INSTALLATION

- A. General: Install all miscellaneous pipe and fittings in accordance with the specifications contained herein and in Section 15109 and in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1.
- B. Connections Between Dissimilar Metals: Where connections are to be made between pipelines or equipment of corrosion causing dissimilar metals make the connections using dielectric insulating couplings, unions or other approved dielectric insulating devices.
- C. Couplings: Only use couplings to join standard lengths of pipe and as required to complete a straight run of pipe. Do not use couplings to join random lengths of pipe and cuttings from standard lengths.
- D. Reducing Fittings: Use reducing fittings for all changes in pipe size. Do not use bushings.
- E. Pipe Flexibility: Make ample provisions for flexibility in all pipelines in accordance with Section 15109.
- F. Drip Pans: Provide drip pans under all metallic pipelines installed over electrical equipment and motors and properly connect to the drainage system with 3/4-inch red brass pipe. Make leaktight connection between the drip pan and the drain pipe. Pitch pans uniformly toward the drain pipe not less than 1/8-inch per lineal foot.

3.2 CLEANING AND PAINTING

- A. Cleaning: Flush all process and potable water pipelines with clean water.
- B. Leakage: Test pipes at the pressures specified in the piping schedules located in Section 15109.
- C. Paint in accordance with Section 09900, unless otherwise specified.

3.3 SCHEDULES

- A. Refer to the schedules contained in Section 15109 Erecting and Jointing Interior Piping for information on the piping that is to be constructed using the pipe materials and methods specified herein.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 15109
ERECTING AND JOINTING INTERIOR PIPING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Furnishing of supports and hangers and installation of all interior and exposed exterior piping and supports.

1. Furnish, support, hang and install piping of the materials, coatings and linings shown or specified at locations as specified or where shown.

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. ASME B1.20.1 - Pipe Threads, General Purpose, Inch
2. ASME B31.1 - Power Piping with Addenda

1.3 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle all products and materials as specified in Division 1 and as follows:

1. Take extreme care in loading and unloading the pipe and fittings. Do the work slowly using skids or suitable power equipment, and keep the pipe under control at all times.
2. Handling Procedures: Under no condition is the pipe to be dropped, bumped, dragged, pushed or moved in any way which will cause damage to the pipe, lining or coating.
3. Use of Slings: When handling the pipe with a crane, use a suitable pipe hook or sling around the pipe. Under no condition is the sling to be allowed to pass through the pipe unless adequate measures are taken to prevent damage to the pipe ends, lining and coating.
4. Damage: If any piping or fittings are damaged in the process of delivery, storing, handling, or laying, replace or repair such piping or fittings as approved.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted.

1. Pipe Dope for Threaded Joints

- a. Masters Metallic Compound by Harbinseal Corporation

2.2 MATERIALS

A. Provide hangers and supports and all necessary appurtenances as specified in Section 15060.

2.3 FABRICATION

A. Coating: Provide all threads coated with a suitable pipe dope, Masters Metallic Compound, graphite and engine oil, or equal, before jointing.

PART 3 EXECUTION

3.1 PREPARATION

A. Painting: Paint hangers, supports, anchors, and similar devices as specified in Section 09900.

3.2 INSTALLATION

A. General: Install all piping in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1.

1. Install exposed piping at right angles or parallel to building walls. Diagonal runs are not permitted, unless expressly indicated.
2. Install piping free of sags or bends and with ample space between piping to permit proper insulation applications, with 1-inch clearance outside the insulation.
3. Place pipe runs to minimize obstruction to other work.
4. Install piping to allow for expansion and contraction without stressing pipe, joints or connected equipment.
5. Slope piping as shown and arrange systems to drain at low points.

6. Do not penetrate building structural members unless shown.
7. Locate groups of piping parallel to each other and at common elevations whenever practical, spaced to permit applying insulation and servicing of valves.
8. Arrange miscellaneous pipelines, which are shown in diagram form on the Plans, clear of other pipelines and equipment.
9. Fit and install pipelines in a neat and workmanlike manner in accordance with approved shop drawings.
10. Provide an adequate number of unions in main pipe and branch pipe runs to facilitate dismantling or removal of pipeline sections without disturbing adjacent branch or connecting lines.
11. Install suitable sleeves at all points where pipes pass through walls or floors of structures and where wall castings are not provided.
12. Include proper pipe protection saddles on pipes which are covered with insulation.

B. Flanged Joints: Make flanged joints with bolts or bolt studs with a nut on each end.

1. Field Flanges: Shop screw threaded flanges to pipe unless threading in the field is permitted with prior approval.
2. Flange to Pipe Assembly: Assemble pipe to be fitted with threaded flanges as follows:
 - a. Accurately thread pipe and flanges to the appropriate gauge, screw flanges on by heavy machinery until the end of the pipe projects beyond the face of the flange and a tight metal-to-metal joint is produced without evidence of heat in the threaded portion.
 - b. Cut the projecting end of the pipe off flush with the face of the flange.
 - c. Make a light refacing cut across both the end of the pipe and the face of the flange at right angles to the center line of the pipe and then ream the pipe.
 - d. Flanged to Flange Assembly: Align flange surfaces parallel. Assemble joints by sequencing bolt tightening to make initial contact of flanges and gaskets as flat and parallel as possible. Use suitable

lubricants on bolt threads. Tighten bolts gradually and uniformly to appropriate torque specified by bolt manufacturer.

C. Threaded Joints: Conform threaded joints to ASME B1.20.1, tapered pipe threads for field cut threads unless otherwise specified. Join pipe, fittings, and valves as follows:

1. Note internal length of threads in fittings or valve ends, and proximity of internal seat or wall, to determine how far pipe should be threaded into joint.
2. Align threads at point of assembly.
3. Apply appropriate tape or thread compound to the external pipe threads.
4. Assemble joint to appropriate thread depth. Assemble joint to produce a tight joint without evidence of heat in the threaded portion. When using a pipe wrench on valves, place wrench on valve end into which pipe is being threaded.
5. Damaged Threads: Do not use pipe with threads which are corroded, or damaged. If weld opens during cutting or threading operations, do not use that portion of pipe.
6. Retightening: Once a threaded joint has been assembled, it is not to be backed off unless the threads are recleaned and new compound or tape applied before rejoining.

D. Sleeve Type Couplings: For sleeve type couplings, equally tighten diametrically opposite bolts on the coupling to bring the gaskets up evenly all around the pipe.

1. Torque Wrenches: Do final tightening with torque wrenches set for the torque recommended by the coupling manufacturer.

E. Welding: Comply welding of pipe joints with the requirements of ASME B31.1 unless otherwise specified. Do all off site welding of steel pipe conforming to the appropriate requirements.

1. Procedures: Confirm that pipe and fittings with wall thickness of 3/16-inch and larger have ends beveled for welding, and that the parts to be welded are securely held in place and are in proper alignment during welding.
 - a. Separate the abutting pipe ends before welding to permit complete fusion to the inside wall of the pipe without overlapping.
 - b. Provide welding continuous around the joint and completed without interruption.

- c. Provide welds of the single vee butt type, of sound weld metal thoroughly fused into the ends of the pipe and into the bottom of the vee.
- d. Provide welds free from cold shuts, pinholes, oxide inclusions or other defects.

F. Anchors and Stands: Furnish and install anchors and stands when specified, shown, or required for holding the pipelines and equipment in position or alignment.

- 1. Small Piping Supports: Where adjustable supporting devices are not required, support pipelines 3 inches in diameter and smaller on cast-iron, malleable iron, or steel hooks, hook plates, rings or ring plates.

G. Hangers and Supports

- 1. Direction Changes: Provide pipe hangers at each change in pipe direction, on both sides of pipe mounted valves and equipment and on both sides of pipe loops and expansion absorbing devices.
- 2. Brackets: Use brackets for the support of piping from vertical surfaces.
- 3. Anchors: Furnish and install anchors when specified, shown, or required for holding the pipelines and equipment in position or alignment.
- 4. Inserts: Install galvanized inserts in concrete structures where required for fastening supporting devices.
- 5. Fire Protection System Piping: Support fire protection system piping independently from other piping systems.
- 6. Controlled Movements: Install hangers and supports to allow controlled movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends and similar units.
- 7. Load Distribution: Adjust hangers to distribute loads equally on the attachment and to achieve any indicated slope of the pipe.

3.3 FIELD QUALITY CONTROL

A. Tests: After installation of the interior and exposed exterior piping and supports, control equipment and all appurtenances, subject the units to a field running test, as specified in Division 1, under actual operating conditions. Where field welding of pipe joints shown, specified, permitted, or required meet the requirements of ASME B31.1 -Power Piping, Chapter VI Section 137.4 Hydrostatic Testing.

1. Perform testing of pipelines in accordance with the requirements of Section 02516.

3.4 CLEANING

- General: Clean the interior of pipelines of all dirt and superfluous material of every description in an approved manner.
- Thoroughly clean threads for threaded joints after reaming.
- Disinfection: Disinfect pipelines carrying potable water in accordance with requirements of Section 02512.

3.5 SCHEULE

- Definitions: Abbreviations used in the schedule are as follows:

1. Pipe Materials:

a.	Al	Aluminum
b.	Br	Brass
c.	C	Concrete
d.	CI	Cast-iron
e.	CISP	Cast-iron soil pipe
f.	Cl	Clay
g.	CPVC	Chlorinated Polyvinyl Chloride
h.	CU	Copper
i.	DI	Ductile Iron
j.	PCCP	Prestressed Concrete Cylinder Pipe
k.	PE	Polyethylene
l.	PVC	Polyvinyl Chloride
m.	RCP	Reinforced Concrete Pipe
n.	RCPP	Reinforced Concrete Pressure Pipe
o.	SS	Stainless Steel
p.	St	Steel

2. Joints:

a.	B	Bituminous
b.	B&S	Bell and Spigot
c.	F	Flanged
d.	G	Grooved End
e.	H	Harnessed
f.	HC	Hubless Coupling
g.	HSC	Hub and Spigot - Compression Gasket
h.	HSL	Hub and Spigot - Lead and Oakum

i.	MJ	Mechanical Joint
j.	PO	Push-on Joint
k.	RRG	Restrained Retainer Gland
l.	RS	Rubber and Steel
m.	Sd	Soldered
n.	SF	Socket Fusion
o.	SI	Sleeve Type Coupling
p.	SW	Solvent Welded
q.	W	Welded

3. Coatings and Linings:

a.	BC	Bituminous - Cold Application
b.	CE	Concrete Encased
c.	CL	Cement-Mortar Lined
d.	E	Epoxy
e.	G	Galvanized
f.	GL	Glass Lined
g.	I	Insulated
h.	KL	Polyvinylidene Fluoride (PVDF or KYNAR®) Lined
i.	P	Painted
j.	PCL	Polyvinylidene Chloride (PVDC) Lined
k.	PEW	Polyethylene Wrapped
l.	PPL	Polypropylene Lined
m.	RC	Rubber Coated
n.	RL	Rubber Lined
o.	W	Wrapped

B. Schedule: Provide products as listed in the following schedule.

END OF SECTION

INSIDE PIPING SCHEDULE

Service	Size (Inches)	Pipe Material	Protective Coatings		Joints	Test Pressure (psig) ¹	Remarks
			Int.	Ext.			
Pump Discharge – Potable Water	16	St	CL	P,I	F, S	150	Provide 2" thick insulation and PVC cover in accordance with Section 15080
Pump Vent Service Water and Drain Lines	4 Less than 3	St CU	G --	G,P P	HC Sd	150 100	

¹ Measure the test pressures shown in the schedule at the centerline of the pipeline's low point. Adjust test pressures measured at other locations accordingly.

SECTION 15110

VALVES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Requirements for furnishing and installing all valves and operators.

1. Provide valve operators complete, including a suitable enclosure, with all appurtenances necessary for the operator to perform its intended function. Such appurtenances include, but are not limited to, anchor bolts and other mounting hardware, control switches, limit switches, pressure switches, torque switches, gauges, control valves, electrical supply connections, internal electric wiring and controls, terminal blocks, air supply piping, solenoid valves, miscellaneous valves, regulating controls, push button controls, miscellaneous controls, extension stems, local and remote indicators, operating nuts, purge water service with all associated piping, indicating lights, floor boxes, direct burial valve boxes and other such items.
2. For each valve, provide the type of operator specified for the valve in the Valve Schedule.

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. ASME B1.20.1 - Pipe Threads, General Purpose
2. ASME B1.20.7 - Hose Coupling Screw Treads
3. ASME B16.1 - Cast Iron Pipe Flanges and Flanged Fittings
4. ASTM A 27/A27M - Specification for Steel Castings, Carbon, for General Application
5. ASTM A 29/A29M - Specification for Steel Bars, Carbon and Alloy, Hot Wrought and Cold-Finished, General Requirements
6. ASTM A 48 - Specifications for Gray Cast Iron Castings

7. ASTM A 126 - Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
8. ASTM A 197 - Specification for Cupola Malleable Iron
9. ASTM A240/A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
10. ASTM A 276 - Specification for Stainless and Heat-Resisting Steel Bars and Shapes
11. ASTM A 395 - Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures
12. ASTM A 436 - Specification for Austenitic Gray Iron Castings
13. ASTM A 479/A479M - Specification for Stainless and Heat Resisting Steel Wire Bars, and Shapes for Use in Boilers and Other Pressure Vessels
14. ASTM A 536 - Specification for Ductile Iron Castings
15. ASTM A 564/A564M - Hot Rolled and Cold Finished Age Hardening Stainless and Heat Resisting Steel Bars and Shapes
16. ASTM A 572/A572M - Specification for High Strength Low Alloy Columbium Vanadium Steels of Structural Quality
17. ASTM A 743/A743M - Specifications for Castings, Iron-Chromium, Iron-Chromium - Nickel, and Nickel-Base Corrosion-Resistant for General Application
18. ASTM A 744/A744M - Specification for Castings, Iron-Chromium-Nickel, Corrosion-Resistant, for Severe Service
19. ASTM B 30 - Specification for Copper Base Alloys in Ingot Form
20. ASTM B 148 - Specification for Aluminum-Bronze Castings
21. ASTM B 584 - Specification for Copper Alloy Sand Castings for General Applications

- 22. AWWA C500 - Metal Seated Gate Valves for Water and Sewerage Systems
- 23. AWWA C504 - Rubber-Seated Butterfly Valves
- 24. AWWA C508 - Swing Check Valves for Waterworks Service, 2 inch through 24 inch NPS
- 25. AWWA C509 - Resilient-Seated Gate Valves for Water Supply Service
- 26. AWWA C512 - Air-Release, Air/Vacuum, and Combination Air Valves for Waterworks Service
- 27. MSS SP-70 - Cast Iron Gate Valves, Flanged and Threaded Ends
- 28. MSS SP-80 - Bronze, Globe, Angle and Check Valves
- 29. SAE J356 - Welded Flash Controlled Low-Carbon Steel Tubing Normalized for Bending, Double Flaring, and Beading
- 30. SAE J524 - Seamless Low-Carbon Steel Tubing Annealed for Bending and Flaring
- 31. SAE J525 - Welded and Cold-Drawn Low-Carbon Steel Tubing Annealed for Bending and Flaring

1.3 SUBMITTALS

- A. General: Provide all submittals, including the following, as specified in Division 1.
- B. Shop Drawings: Submit the following:
 - 1. Complete detailed drawings of all valves
 - 2. Working drawings, including arrangement and erection drawings of the operators and control equipment; schematic control diagrams, electrical connection diagrams, and complete description of the control system; and operating characteristics
- C. Quality Control Submittals: Submit the following:
 - 1. If requested, manufacturer's certified performance and material records.

2. If requested, complete calculations for each size of motor operator indicating the force required to operate the valve, the operator force provided, full load and locked rotor current, and horsepower.
- D. Operation and Maintenance: Submit operation and maintenance manuals for the valve operators.

1.4 QUALITY ASSURANCE

- A. Furnish all valves of the same type from the same manufacturer. Provide parts that are interchangeable for all valves of the same type and size.

1.5 DELIVERY, STORAGE AND HANDLING

- A. General: Deliver, store and handle all products as specified in Division 1 and as follows.
- B. Tests: Furnish a letter confirming that all valves have been satisfactorily tested as specified, prior to shipment.
- C. Storage and Erection: Pack and store all valves in satisfactory operating condition. Carefully erect all valves in their respective positions, free from all distortion and strain.

1.6 SPARE PARTS

- A. For each size hydraulic cylinder operator:
 1. One set of packing
 2. One set of cup leathers or O-rings
 3. One needle valve
 4. One check valve
 5. One solenoid control valve

PART 2 PRODUCT

2.1 MANUFACTURERS

- A. Acceptable manufacturers are listed below.
 1. Gate Valves:
 - a. American Flow Control
 - b. M&H Valve Company
 - c. Mueller Company

- d. NIBCO, Inc.
- e. Stockham
- f. United States Pipe and Foundry

2. AWWA Butterfly Valves:
 - a. Henry Pratt Company
3. 4-Way Solenoid Valves:
 - a. Automatic Switch Company (ASCO)
4. Globe and Angle Valves:
 - a. NIBCO, Inc.
 - b. Stockham
5. Air and Vacuum Valves:
 - a. APCO
 - b. Val-Matic

2.2 MATERIALS

A. General:

1. Fabricate valves of materials resistant to corrosion for the required service.
2. Fabricate valves that are to be installed in metal pipelines and that are 2 inches in diameter and smaller of all brass or bronze, except fabricate the handwheel of ASTM A 197 malleable iron. Fabricate valves that are to be installed in metal pipelines and that are 2-1/2 inches in diameter and larger of the materials specified herein.
3. Fabricate gate, globe and angle valves with a minimum steam working pressure rating of 125 psig and a minimum nonshock cold water, oil or gas pressure rating of 200 psig, unless otherwise specified.
4. Fabricate operators of materials resistant to corrosion for the required services. Provide operator materials as specified.
5. Operator housings and pedestal handwheels:

a. Cast iron	ASTM A 126, Class B
	ASTM A 48, Class 30 or 35
b. Ductile iron	ASTM A 395
	ASTM A 536, Grade 65-45-12
c. Cast steel	ASTM A 27/A27M

6.	Operator worms, steel	ASTM A 29/A29M Grade Designation 8620
7.	Operator gears, steel (spur & helical)	ASTM A 572/A572M
8.	Worm gears, bronze	ASTM B 148, Alloy C95400 or C95500 ASTM B 584, Alloy C86300

B. Valve Joints

1. Fabricate valves 2 inches in diameter and smaller of the threaded or solder end type for valves to be installed in copper pipelines, and of the threaded end type for valves to be installed in metal pipelines.
2. Fabricate all valves 2-1/2 inches in diameter and larger, except bronze valves 2-1/2 and 3 inches in diameter, with flanged ends, unless otherwise specified.
3. Fabricate bronze valves 2-1/2 and 3 inches in diameter with solder or threaded type ends for valves installed in copper pipelines and threaded type ends for all other pipelines.
4. For metallic flanged joints, provide flanges that are faced accurately at right angles to the axis of the casting. Face and drill flanges and shop coat with a rust-preventive compound before shipment.
5. For flanged joints, provide flanges whose dimensions and drillings meet the requirements of ASME B16.1, 125 pounds as a minimum. For valves installed in pipelines with test pressure requirements higher than 125 psi, provide flanges whose pressure ratings equal or exceed the specified test pressure of the pipeline. Furnish special drillings where required. For valves having flanges that do not conform with the thickness requirements of ASME B16.1, test each valve in accordance with the hydrostatic shell test pressure requirements of ASME B16.1.

C. Operating Force: Fabricate valves to limit the maximum force required to operate all manual valves, including but not limited to valves with wrench operated nuts, levers, handwheels and chainwheels, to 40 pounds. Limit the overall length of each wrench or single-arm lever to 18 inches. Limit the overall length of each dual-arm lever to 36 inches.

D. Handwheel: Mark each valve handwheel with an arrow and the word OPEN. Mark each nut with an arrow.

2.3 GATE VALVES

A. Materials: Unless otherwise shown or specified, furnish and install gate valves meeting the following requirements:

Nominal Valve Size, Inches	Standard	Type
3 and smaller	MSS SP-80	Solid wedge
4 thru 12 for HVAC Service	MSS SP-70	Solid Wedge
4 thru 12, except for HVAC Service	AWWA C509	Resilient seat
16 and larger, except for HVAC Service	AWWA C500	Double disc

B. Rising Stems: Manufacture all gate valves with rising stems, unless otherwise shown or specified. Design all gate valves to open when the nut or handwheel is turned counterclockwise.

C. Nonrising Stem: For buried service, furnish nonrising stem gate valves. Equip nonrising stem valves, except for buried or submerged service, with externally visible indication of the disc position at all points of travel.

D. Stem Seals: Use the following types of stem seals:

Valve Type	Stem Seal
Nonrising stem	O-ring
Rising stem (Outside stem and yoke)	Stuffing box
Geared	
Nonrising stem	O-ring or stuffing box
Rising stem (Outside stem and yoke)	Stuffing box

E. Packing: Provide nonasbestos braided, twisted or formed ring type packing suitable for the pressure-temperature ratings of the valve.

F. Bonnet: Provide 3-inch and smaller gate valves with threaded bonnets. Provide 4-inch and larger gate valves with outside screw and yoke bonnets.

G. Accessories: Provide zinc plated bonnet bolts, studs and nuts, except for submerged service. Provide stainless bonnet bolts, studs and nuts for submerged service. Make wedging devices bronze to iron or bronze to bronze. Provide glands which are bronze or bronze bushed and bronze gland bolts and nuts.

2.4 BUTTERFLY VALVES

A. General:

1. Provide butterfly valves 4 inches and smaller of the full lug pattern with drilled and tapped bolt holes.

2. Provide butterfly valves 6 inches and larger of the full flanged pattern that meet the requirements of AWWA C504.
3. Provide butterfly valves of the rubber-seated, tight-closing type.
4. For fluid temperatures equal to or less than 180 degrees F, provide Buna-N seats. For fluid temperatures greater than 180 degrees F, provide EPDM or Viton seats. For fluid temperatures exceeding the temperature ratings of EPDM and Viton, provide seats that are appropriate for the intended service.

B. Materials:

1. For butterfly valves 4 inches and smaller, provide valve materials as specified below or as required for the service:
 - a. Valve bodies:

Cast iron	ASTM A 126, Class B
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 - b. Valve shafts:

Stainless steel	ASTM A 564, Type 630 (17-4 PH stainless steel)
	ASTM A 276 Grade 316
 - c. Valve discs:

Aluminum Bronze	ASTM B 148
Bronze	ASTM B 30
 - d. Bearings:

	TFE coated stainless steel
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2. For butterfly valves 6 inches and larger, provide valve materials as specified below or as required for the service:
 - a. Valve bodies:

Cast iron	ASTM A 126, Class B
	ASTM A 48, Class 40
 - b. Valve shafts:

	ASTM A 276 or A 479/A479M, Type 304, stainless steel or carbon steel with A 276 or A 479, Type 304 stainless steel journals
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 - c. Valve discs:

Cast iron	ASTM A 48, Class 40
Alloy cast iron	ASTM A 436, Type 1
Ductile iron	ASTM A 536, Grade 65-45-12
Bronze	AWWA C504 Grade A, D or E

d.	Mating seat surface:	
	Stainless steel	
	(castings)	ASTM A 743/A743M, A 744 Grade CF-8 or CF-8M
	Stainless steel	ASTM A 276 or A479, Type 304
	Alloy cast iron	ASTM A 436, Type 1
	Seats:	Buna-N

- C. General AWWA C504 Construction: For butterfly valves 6 inches and larger, manufacture valves and all accessories, including operators, to meet the requirements of AWWA C504, except as otherwise specified. Provide valve bodies of the short-body flanged type, as shown or specified. Wafer body type valves without lugs are not acceptable.
- D. Pressure: Provide butterfly valves of pressure classes that are not less than Class 150B, that exceed the pipeline test pressure in which the valve is installed, or that are as specified, whichever is greater.
- E. Shafts: If stub shafts are furnished, extend the shafts a minimum of 1-1/2 diameters into the discs and provide clearance between the shaft and discs not exceeding the following:

Shaft Diameter <u>(Inches)</u>	Maximum Radial Clearance (Inches)
1/2 to 1-1/2	.002
2 to 4	.0025
5	.003
6	.004

2.5 4-WAY SOLENOID VALVES

- A. General: Provide 4-way, differential-operated, packless, poppet seat type solenoid-operated control valves with all parts rustproof and noncorrosive. Provide coils of the molded type, Class B insulated, in NEMA Type 4 Enclosure designed for operation using 120-volt, 60-hertz current. Provide single-solenoid type valves. Arrange the solenoid such that when energized it positions the 4-way valve to open the cylinder-operated valve and when de-energized, it positions the 4-way valve to close the cylinder-operated valve. Arrange the 4-way valves for manual operation independent of and without disturbing the electrical control.

2.6 GLOBE AND ANGLE VALVES

- A. General: Provide globe and angle valves that meet the requirements of MSS SP-80.

- B. Disc and Seats: Equip gate and globe valves with renewable bronze discs and renewable seats.
- C. Bonnet: Equip globe and angle valves with threaded bonnets.
- D. Packing: Provide nonasbestos braided, twisted or formed ring type packing suitable for the pressure-temperature ratings of the valve.

2.7 AIR AND VACUUM VALVES

- A. General: Provide slow closing air and vacuum valves that meet the requirements of AWWA C512.
- B. Materials:
 - 1. Body, cover and baffle:

Cast Iron	ASTM A 126, Class B
	ASTM A 48, Class 40
 - 2. Float:

Stainless Steel	ASTM A 240 or
	ASTM A351, Grade CF8M
 - 3. Seat:

Buna-N	
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- C. Construction: Provide valves consisting of body, cover, baffle, float, and seat. Design baffle to protect the float from direct contact with rushing air and water to prevent float from closing prematurely.
- D. Discharge Orifice: Fit discharge orifice with an adjustable throttling device to regulate air flow rate.
- E. Slow Closing Inlet: Equip valve inlet with surge check valve or anti-slam device to prevent rapid closure of the valve. Design valve to allow air to pass through the inlet unrestricted and to provide slow closure of the float upon entry of water. Provide adjustable surge check orifices.
- F. Floats: Provide center-guided, stainless steel float for positive seating, designed to withstand a minimum of 1,000 psi.
- G. Valve Seat: Fasten the seat to the valve cover without distortion and allow for easy removal.
- H. Isolation Valve: Provide butterfly valve for isolation on the air and vacuum valve.

2.8 SOLENOID VALVES

- A. Provide solenoid valves of the direct acting, all electric, normally closed, packless type with full area ports, unless otherwise shown or specified. Design valves to not require a pressure assist from the process fluid to open or close. Size the solenoids in accordance with the pressure conditions in the pipeline in which valves are installed. Construct the valve body and bonnet of forged brass and construct the solenoid core of stainless steel. Design solenoid the coils for 115-volt, 60-hertz operation. Embed solenoid coils in molded plastic and install coils in NEMA Type 1 general purpose enclosures, except as shown or specified.

2.9 MANUAL BUTTERFLY VALVE OPERATORS

- A. General: Provide operators as an integral part of the valve. Manufacture manual operators of the enclosed, hand-lever, traveling-nut or worm-gear type, as shown or specified.
- B. Hand-Lever Type: Fabricate hand-lever type operators of cast-iron or steel construction with a nonmetallic, nonslip handgrip. Equip the lever with a locking device to secure the valve disc in the fully open or fully closed position, or at a minimum of 5 intermediate positions at 15 degree intervals. Provide mechanical stop-limiting devices to prevent overtravel of the disc in either direction. Permanently lubricate operators or provide operators with grease fittings.
- C. Traveling-Nut Type: Fabricate traveling-nut type operators with a threaded steel screw and a bronze nut. Provide a slotted-lever or link-lever system to transfer the applied torque to the disc shaft. Equip all rotating shafts, screws and links with separate bearings. Provide thrust bearings.
- D. Worm-Gear Type: Fabricate worm-gear type operators with a worm gear and matching drive worm. Provide bearings for each rotating member.
- E. Stop-Limiting Devices: Provide stop-limiting devices on traveling-nut and worm-gear type operators to prevent overtravel of the disc in either direction. Design the operator to hold the disc in any position without flutter or wear on the valve or operator. House the operator in a watertight enclosure. Pack operators with grease or with oil. For buried or submerged service, equip valve operators with stainless steel external bolting.

2.10 LOW PRESSURE HYDRAULIC CYLINDERS

- A. General: For low pressure water operation, provide hydraulic cylinders of rolled steel, red brass or stainless steel tubing, or of high-grade seamless cold-drawn brass or stainless steel tubing or of glass fiber reinforced epoxy tubing with an integral liner of molybdenum disulfide dispersed in an epoxy matrix. Bronze fit cylinder heads or otherwise fabricate and protect them against corrosion and tuberculation. Provide pistons and piston rods fabricated of bronze, stainless steel

or steel with hard nickel or chromium plating. Provide the piston rod with an easily accessible stuffing box, O-rings, or pressure energized seal which will effectively prevent leakage without scoring the rod or causing undue friction. Provide the piston with two L-shaped cup leathers or sufficient resilient O-rings to insure against leakage past the pistons. Provide bronze gland studs and nuts and head tie bolts and nuts. Mount the cylinders on the valve bodies or on separate supports as shown or specified. Design cylinders to operate the valves at the unbalanced pressures specified with power water at a pressure of 30 psig. Hydrostatically test the cylinders in the manufacturer's shop at a pressure of 150 psig.

- B. Opening and Closing Times: Equip the cylinders with needle valves and check valves as required to adjust the opening and closing times from 60 to 300 seconds in the field. Needle valves and check valves may be an integral part of the cylinder or may be separately mounted.
- C. Hose: If the cylinders are of the swiveling type, provide a length of hose of the proper size and length at each connection. Provide 4-ply hose for 1 inch and larger, and 3-ply hose for smaller sizes. Provide rubber hose reinforced with medium weight square woven duct wrapped at a 45-degree angle.
- D. Tapped Openings: For control piping, provide tapped openings in the hydraulic cylinder heads of the largest practicable size and tapped for American Standard pipe threads in accordance with ASME B1.20.1.
- E. Mechanical Indicator: For each valve provide a mechanical indicator that is designed to indicate all positions from opened to closed.
- F. Handwheel Operator: Equip each cylinder with a handwheel for manual operation of the valve, with maximum pull not to exceed 40 pounds. Arrange the handwheel to be disconnected during automatic operation.
- G. Limit Switches: Equip each cylinder with limit switches arranged to operate as the valve moves into the closed or opened position. Provide each limit switch with a minimum of one normally open and one normally closed contacts, each rated at 10 amps for 120-volt ac power.

PART 3 EXECUTION

3.1 INSTALLATION

- A. General: Install valves in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1.

3.2 PAINTING AND COATING

- A. General: Unless otherwise specified, coat the inside iron or steel surfaces of all valves and exterior surfaces of valves and operators that are to be buried in the ground or immersed in sewage or water with two coats of asphalt varnish. Paint exterior surfaces of other valves and operators as specified in Section 09900.

3.3 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services: Furnish the services of a qualified representative of each of the various manufacturers to inspect the completed installation, make any necessary adjustments, and place the equipment in trouble-free operation, as specified in Division 1.
- B. Tests: After installation of the valves, control equipment and all appurtenances, subject the units to a field running test, as specified in Division 1, under actual operating conditions. Operate each valve through one complete open-close cycle under the maximum pressure differential practical.

3.4 OPERATION DEMONSTRATION

- A. Manufacturer's Field Services: Furnish the services of a qualified representative of each of various manufacturer's to demonstrate the proper operation and instruct pump station personnel in the equipment's operation and maintenance, as specified in Division 1.

3.5 SCHEDULE

- A. Abbreviations used in the schedule are as follows:

Joints

B&S	Bell and Spigot
F	Flanged
G	Grooved End
Lu	Lug
MJ	Mechanical Joint
Sc	Screwed
Sd	Soldered
SW	Solvent Welded
W	Welded

Operators

AC	Air-Oil Cylinder
BS	Bench Stand
D	Diaphragm
E	Electric Motor (Nonmodulating)
F	Float
FS	Floor Stand
H	Handwheel
HC	Hydraulic Cylinder (High Pressure)
L	Lever
ME	Modulating Electric Motor
N	Nut
PC	Pneumatic Cylinder
S	Solenoid
WC	Water Cylinder (Low Pressure Hydraulic Cylinder)

END OF SECTION

VALVE SCHEDULE

Facility/Service	Valve Type	Size Inches	Joint Type	Operator Type	Remarks
Pump Discharge – Potable Water	Butterfly	16	F	WC	
Pump Discharge – Air Vent	Air and Vacuum Valve	4	F	--	
Service Water (to hydraulic cylinder operator)	4-Way Solenoid	1	Sd	--	
Service Water (to hydraulic cylinder operator)	Globe	1	Sd	M	

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SECTION 15122
PRESSURE SWITCHES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Requirements for furnishing and installing pressure sensing devices, pressure transfer tubing, pressure switches and isolating devices as shown and specified.

1.2 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle all products and materials as specified in Division 1.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted.

1. Differential Pressure Switches

a. Model No. DPD1T-A80 as manufactured by Barksdale, Inc.

2.2 DESIGN

A. Construction: Provide differential pressure switches of housed diaphragm type to be installed across the cylinder operated butterfly valves. Provide a 1/2-inch NPT pressure connections. Design the switch with an adjustable operating point with a range of 4 to 80 psig. Provide a single pole, double throw switch with snap action contacts, rated at 10 amps for 120-volt ac power. House the entire device in a NEMA 4 watertight, dust-tight enclosure. Design the switch for a differential proof pressure of 160 psig.

B. Shutoff Cocks: Provide shutoff cocks for each process connection constructed of brass.

PART 3 EXECUTION

3.1 INSTALLATION

- A. General: Install all products in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1.

END OF SECTION

SECTION 15124
GAUGES - PRESSURE AND VACUUM

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Requirements for furnishing and installing gauges and isolating devices as shown and specified.

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. ASME B40.100 - Pressure Gauges and Gauge Attachments

1.3 SUBMITTALS

A. Provide all submittals, including the following, as specified in Division 1.

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle all products and materials as specified in Division 1.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted.

1. Gauges

a. Ashcroft, Inc.
b. U.S. Gauge, a Division of Ametek, Inc.

2.2 DESIGN

A. General: Provide gauges to include pressure, vacuum, and compound gauges of the dial-indicating bourdon tube type. Manufacture gauges to the requirements of ASME B40.100 except as modified herein. Locate gauges as shown or specified.

B. Pressure Gauges: Provide Grade 2A Process Gauges with a range of 0 to 160 psig, with an accuracy of 0.5 percent of the maximum scale reading.

2.3 CONSTRUCTION

A. Construct gauges with a nominal size of 4-1/2 inches. Provide bottom located pressure connection, 1/2-inch NPT, male fitting extending a minimum of 1-1/4 inches beyond the case and with large wrench flats. Provide a phenolic case of the stem-mounted type. Design the movement to be rotary gear or helical roller type designed to minimize wear and maintain accuracy. Make provisions for adjustment of zero reading. Manufacture dials white faces with black numerals and markings. Provide gasket sealed glass windows to prevent moisture and dust from entering the gauge case.

EXECUTION

2.4 INSTALLATION

A. General: Install pressure gauges in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1.

END OF SECTION

SECTION 16220
ELECTRIC MOTORS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Requirements for electric motors as specified.

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. AFBMA 10 - Metal Balls
2. NEMA CP1 - Shunt Capacitors
3. NEMA MG1 - Motors and Generators
4. NEC - National Electrical Code

1.3 SUBMITTALS

A. General: Furnish all submittals, including the following, as specified in Division 1.

B. Product Data and Information: Furnish manufacturer's catalog data for each motor.

C. Shop Drawings: Furnish shop drawings for each motor detailing arrangement, wiring, conduit boxes, and motor application.

D. Certificate of Compatibility: For each motor, furnish a certificate that the new motors are compatible with the existing solid state reduced voltage starter, and the equipment loads to be driven.

E. Quality Control: Furnish test reports for motors as follows:

1. Certified standard commercial test and additional testing reports for 300 hp motors.

F. Operations and Maintenance Manuals: Furnish operation and maintenance manuals for all motors as specified in Division 1.

1.4 QUALITY ASSURANCE

A. Codes: Comply with local codes and all other applicable codes.

B. Regulatory Requirements: Comply with requirements of the Regulatory Agencies having jurisdiction over this Project.

1.5 DELIVERY, STORAGE AND HANDLING

A. General: Deliver, store and handle all products and materials as specified in Division 1.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted for review.

1. General Electric Company
2. Ideal Electric
3. Magnetek
4. Reliance Electric
5. Siemens
6. U.S. Electrical Motors
7. TECO/Westinghouse Corp.

2.2 MATERIALS

A. General: Provide motors and accessories with the equipment as specified under the equipment sections.

B. Motor Requirements: Unless otherwise specified, provide motors as follows:

1. Polyphase motors of the high energy premium efficiency and high power factor type.
2. Motor nameplate horsepower as specified for the driven equipment.
3. Motors that operate continuously over the entire load range of the driven equipment without loading motor in excess of nameplate rating and its specified temperature limit.
4. For 300 hp rated motors, operating at 460 volts, 3-phase, 60-hertz, provide squirrel cage induction type, as specified.
5. Motors that are suitable for continuous operation with a line voltage variation within $\pm 10\%$ of rated voltage.

6. Motors that operate continuously in a 40 degrees C ambient.

7. Provide inverter duty motors.

8. Provide NEMA code G motors.

C. Frequent Start Requirements: Provide motors for a minimum of 4 starts per hour.

2.3 MECHANICAL PROTECTION

A. Indoor Locations:

1. For motors located in Pump Room provide open drip-proof weather protected type 1 (WP1) enclosure.

2.4 BOXES

A. General: Provide oversized conduit boxes on motors to facilitate conductor installation and auxiliary components as required.

1. Provide separate boxes for motor power leads, accessory terminals as required.

2. Make conduit box NEMA enclosure ratings compatible with motor enclosures.

2.5 NEMA DESIGN AND INSULATION

A. Design Classification: Provide NEMA Design B, unless otherwise specified with NEMA Class F moisture resistant insulation and NEMA Class B, 80 degrees C temperature rise at rated nameplate load.

B. Variable Voltage Operation: Provide insulation to protect against adverse affects of a nonsinusoidal waveform.

2.6 WINDINGS

A. General: Provide copper windings. Do not provide motors with aluminum windings.

2.7 BEARINGS

A. Ball and Roller Bearings: Use antifriction ball or roller type bearings at manufacturer's option, unless otherwise specified.

B. Regreasable Bearings: Use regreasable bearings with support side thrust loadings, with a AFBMA B-10 bearing life rated at least 100,000 hours, based on a reliability of 90 percent. Do not provide motor bearings with oil lubrication.

2.8 SERVICE FACTOR AND LOADINGS

A. Service Factor: Provide 1.15 service factor for sinusoidal voltage waveforms and 1.0 for nonsinusoidal voltage waveforms unless otherwise specified. Where motors with a 1.0 service factor are furnished, provide motors rated at least 15 percent greater than required brake horsepower.

B. Shaft Loading: Provide steady state shaft loading not to exceed 100 percent of full load rating under maximum load, excluding the service factor, unless otherwise specified.

2.9 SPEED

A. General: Provide motor speed as specified for the driven equipment.

2.10 TORQUE

A. General: Provide breakdown torque of 200 percent or more of motor full load torque.

B. Locked Rotor: Provide locked rotor torque of 80 percent or more of motor full load torque.

C. Inertia: Provide necessary WK² data for special loads to coordinate with motors.

D. Special Motors: Supply special motors where torque requirements exceed standard design.

2.11 SLIDE RAILS, SOLE PLATES, AND MOTOR STANDS

A. General: Provide slide rails, sole plates, and motor stands as required for proper installation.

2.12 THREE-PHASE MOTORS

A. Induction Motors: Provide vertical squirrel cage induction motors for continuous duty with full voltage starting except as otherwise specified.

2.13 EFFICIENCY

A. General: Provide premium efficient inverter duty motor. Provide motors with a minimum full load nominal efficiency of 95.8 percent.

2.14 POWER FACTOR

- A. General: Provide motors with a minimum full load nominal power factor of 86.6 percent.:

2.15 NOISE

- A. General: Limit motor machine noise to sound power levels listed in NEMA MG 1-12.

2.16 SOURCE QUALITY CONTROL

- A. Shop Tests: Perform standard commercial and additional tests listed below for 300 hp motors.

- B. Standard Commercial Tests: Perform the following tests in accordance with NEMA standards.

1. No load running current and speed
2. Locked rotor current
3. Dielectric routine tests
4. Motor efficiency tests
5. Motor power factor tests

- C. Additional Testing: Perform the following additional tests in accordance with NEMA standards.

1. Winding resistance
2. Bearing inspection
3. Power factor at full, 3/4 and 1/2 load
4. Efficiency at full, 3/4 and 1/2 load
5. Motor starting torque

PART 3 EXECUTION

3.1 INSTALLATION

- A. General: Install motors in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1. Make all necessary adjustments to equipment to provide a complete operational system.

3.2 FIELD QUALITY CONTROL

- A. Inspections and Tests: Perform field preliminary and final inspection and testing for motors as specified in Division 1 and as follows:

- 1. Preliminary Inspection:

- a. Demonstrate that each motor has been properly connected.
 - b. Check for proper rotation by bumping prior to connecting motor to driven equipment.

- 2. Final Test:

- a. Measure motor applied voltage and current with equipment operating at full load.
 - b. Operate equipment as specified.

3.3 CLEANING AND PAINTING

- A. Shop Painting: Paint the motors in accordance with the requirements of Section 09900.
- B. Field Painting: Clean and touch up marred surfaces to match the original finish.

END OF SECTION

SECTION 16445
MOTOR CONTROL CENTERS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Requirements include providing and modifying existing motor control centers MCC-1 and conduit and wires.

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. IEEE C37.90 - IEEE Standard for Relay and Relay Systems Associated With Electrical Power Apparatus
2. IEEE C62.41 - IEEE Recommended Practice on Surge Voltages in Low Voltage AC Power Circuits
3. IEEE C62.45 - IEEE Guide on Surge Testing for Equipment Connected to Low Voltage AC Power Circuits
4. MIL-STD-220A - Method of Insertion-loss Measurement 12/1/59; with N1 and N2 (Fed/mil H-q)
5. NEMA ICS 2 - Industrial Control and Systems Controllers, Contactors and Overload Relays Not More than 2000 Volts AC or 750 Volts DC.
6. NEMA ICS 3 - Industrial Control and Systems Factory Built Assemblies
7. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum)
8. UL 486A - Wire Connectors and Soldering Lugs for Use With Copper Conductors
9. UL 845 - Motor Control Centers
10. UL 1283 - Electromagnetic Interference Filters
11. UL 1449 - Transient Voltage Surge Suppressors

1.3 SYSTEM DESCRIPTION

- A. Design Requirements: Provide equipment capable of operating in an ambient temperature range of 0 to 40 degrees C and humidity of up to 90 percent noncondensing.
 - 1. Provide motor control centers designed for 480-volt, three-phase, three-wire, 60-hertz operation.
 - 2. Provide all control devices in the motor control center suitable for operation at 120-volts, 60-hertz, unless specifically noted otherwise.
 - 3. Provide all control equipment and devices that meet the requirements of the 600-volt insulation class.
 - 4. Arrange the equipment for convenient and ready accessibility from the front for inspection and maintenance of devices, terminals and wiring.
 - 5. Where shown or required, label the motor control center suitable for use as service entrance equipment.

1.4 SUBMITTALS

- A. General: Furnish all submittals, including the following, as specified in Division 1.
- B. Product Data and Information: Provide catalog data for all associated equipment and devices.
- C. Shop Drawings: Furnish shop drawings customized to the project for motor control centers to include the following:
 - 1. Outline drawings showing dimensions, weights, arrangement, elevations, identification of components and a nameplate schedule for all units.
 - 2. Bill of materials including manufacturers' name and catalog number.
 - 3. Interconnecting wiring diagrams, where required.
 - 4. Individual schematic and wiring diagrams for each compartment.
 - 5. Furnish instruction booklets and time-current curves for each circuit breaker supplied.
- D. Operation and Maintenance Manuals: Furnish operation and maintenance manuals as specified in Division 1.

A. Acceptable Manufacturers: Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted for review.

1. Motor Control Centres:
 - a. Cutler-Hammer
2. 2,500 A_F/2500 A_T Main Circuit Breaker (100 percent rated):
 - a. Cutler-Hammer

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The modifications to the existing Motor Control Centre MCC-1 shall be completed as shown specified and required. CONTRACTOR to review the existing Plans and Shop Drawings before starting modification work.

Total or partial power shut down to the Pumping Station will be permitted by the OWNER. CONTRACTOR shall coordinate power shut down to the station with OWNER. Total or partial power shut down schedule shall be as permitted by the OWNER. CONTRACTOR shall coordinate power shut down to the station with the OWNER and Commonwealth Edison Power Company.

All modifications to the existing equipment and equipment removal shall be fully coordinated with the OWNER. The modification work shall be complete, operational, working and in full running condition. The modification work shall be completed in a neat and workman like manner.

Existing Motor Control Centre MCC-1 was manufactured by Westinghouse Electric Corporation in 1984 by their General Order No. CG-19086-005. The modifications to existing Motor Control Centre MCC-1 shall include the following:

1. Modifications to existing Main and Tie circuit breakers and Ammeter shall include the following:

a. Remove existing 2,500 A (Frame) 1,000 A (Trip) Main circuit breaker and install a new 2,500 A (Frame) 2,500 A (Trip) Main circuit breaker. The new main shall match the existing.

b. Store the removed existing 2,500 A (Frame) 1,000 A (Trip) Main circuit breaker for installation in Tie circuit breaker compartment.

c. Remove existing 0-1,250 A Ammeter in the Main circuit breaker compartment and install a new 0-2,500 A Ammeter in its place. The new ammeter shall match the existing.

d. Remove existing 2,500 A (Frame) 800 A (Trip) Tie circuit breaker. Provide additional relays as required to provide the quantity of auxiliary contacts to Tie circuit breakers as shown and as required.

E. Main Circuit Breaker: Provide molded-case type, three-pole main circuit breaker suitable for Service Entrance duty, as shown, with a minimum voltage rating of 600-volt ac.

4. Provide new Nameplates where required to match existing Nameplates.

3. Modify existing control wiring where required so that other process equipment is not affected.

(c) Change the setting of switch number 4 (from open to closed) of existing DS1 switch in each printed circuit board as shown.

(b) Do not change the setting of switch numbers 1, 2 and 3 of existing DS1 switch in each printed circuit board as shown.

(a) The existing DS1 Switch in each printed circuit board shall stay in place but shall be reprogrammed to accept 300 hp motor.

(3) DS 1 Switches in existing Printed Circuit Boards

(2) Cable Straps and Lugs: Remove, add or provide new cable straps and lugs as shown and required.

(1) Trip Unit for each Motor Circuit Breaker Protector: Remove existing 300 A Trip unit and in its place install new 500 A Trip unit for each Motor circuit breaker protector.

a. The existing Solid state reduced voltage starters are rated for 350 hp motors. They are presently operating 200 hp motors. The existing starters shall be modified to operate new 300 hp motors. The modifications shall include the following:

2. Modifications to existing 350 hp rated Solid state reduced voltage starters for High Service Pump Units PPU-01 and PPU-06

e. No changes to the Main, Tie and Generator bus work are required or permitted.

auxiliary contacts required. Hand over the removed tie circuit breaker to the OWNER.

1. Interrupting Ratings: Provide an interrupting capacity of 100,000 rms symmetrical amperes at 480 volts. Base interrupting rating on the IEEE and NEMA Standard duty cycle for this class of equipment.

2. Provide circuit breakers trip units as follows:

- a. Provide solid-state trip units.
- b. Provide trip units that actuate a common tripping bar to open all poles when an overload or short circuit occurs on any one.
- c. Provide trip elements with inverse time tripping and instantaneous tripping at about ten times the normal trip device rating.
- d. Provide circuit breakers with trip-free handles.
- e. Provide circuit breaker with built-in ground fault protection without a neutral sensing current transformer. Provide adjustable ground fault pickup (240A to 1200A) and delay setting (3.5 to 30 cycles).
- f. Provide circuit breaker alarm switches as required. Provide five auxiliary normally open (52/a) and five normally closed contacts (52/b) and two tripped alarm contacts. Provide new additional contacts (50-100 percent). Provide circuit breaker with an adjustable magnetic trip (2-8 times ampere settings).
- g. Provide circuit breaker with an adjustable rating plug (50-100 bars. Circuit breaker shall be suitable for connection to existing copper bus bars. Contact to field verify requirements before ordering.
- h. Provide adjustable long delay and adjustable long delay time.
- i. Provide adjustable short delay (2-8) and adjustable short delay time (0.08 to 0.28) seconds.
- j. Circuit breaker shall be suitable for connection to existing copper bus to match existing.

F. Push Buttons, Selector Switches and Indicating Lights: Provide heavy duty, oil trigger push buttons, selector switches and indicating lights including legend plates to match existing.

G. Control Components: Provide control components including machine tool quality control relays, latching relays, and time delay relays to match existing.

3. Key interlocks as shown.

PART 3 EXECUTION

3.1 INSTALLATION

A. General: Install all equipment in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division I.

B. Adjustments: Set main and tie circuit breakers as required.

C. Cable Connections: Terminate and label all field wiring per the approved diagrams.

D. Torque Requirements: Tighten electrical connectors and terminals, including screws and bolts, in accordance with equipment manufacturers' published torque specifications. Where manufacturers' torque requirements are not available, tighten connectors and terminals in accordance with UL Standard 486 A.

A. Inspections: Inspect, adjust and check the installation for physical alignment, cable terminations and ventillation.

3.2 FIELD QUALITY CONTROL

2.3 CONDUIT AND WIRING

I. Wiring Schematic: Provide a schematic wiring diagram of each unit and affix it to the inside of the door of that unit.

J. Identification: Provide nameplates having the same type, appearance and shape throughout each motor control center to match existing equipment.

A. Feeders: Provide U.L. Inc. Listed conduit and wiring to match the existing installation.

B. Provide a galvanized rigid steel conduit system to match existing system. Provide copper wires with 600 volt RHH/RHW insulation to match existing wiring system.

C. Tests: Shop test each motor control center in accordance with IEEE and NEMA standards.

I. Operational Tests: After the equipment has been completely assembled, perform operational tests to determine the general operating conditions and circuit continuity.

2.4 SOURCE QUALITY CONTROL

A. Provide U.L. Inc. Listed terminals, suitable for copper conductors for terminating cables, solderless connectors and terminals, compression-type, compression terminals, closed-end, and suitable for copper conductors for terminating cables.

END OF SECTION

B. Tests: Perform the following field tests:

1. Close and open each circuit breaker to test operation.
2. Energize the motor control center and test for hot spots.
3. When site conditions permit, energize and de-energize each equipment item served by each motor control center, testing the complete control sequence of each item.

C. Operation and Maintenance: Furnish operation and maintenance instructions as specified in Division 1.