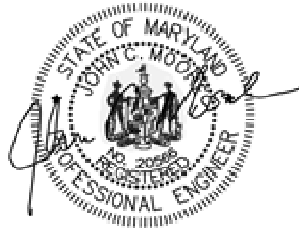


# TECHNICAL SPECIFICATIONS

## Town of Emmitsburg, Maryland Water Treatment Plant Clarifier



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND,  
LICENSE NO. 20566, EXPIRATION DATE: 09/06/2024

JANUARY 2023

Prepared By:

**RK&K**

700 East Pratt Street, Suite 500  
Baltimore, Maryland 21202

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# TECHNICAL SPECIFICATIONS

## TABLE OF CONTENTS

DESCRIPTION	SECTION
<b>DIVISION 1 - GENERAL REQUIREMENTS</b>	
General Requirements.....	01000
Submittals .....	01300
Temporary Facilities and Controls.....	01500
Project Closeout.....	01700
<b>DIVISION 2 - SITE WORK</b>	
Earthwork .....	02200
Trenching, Backfilling and Compacting .....	02221
Dewatering .....	02240
Erosion and Sediment Control.....	02700
Finish Grading and Seeding .....	02850
Chain-Link Fence and Gates.....	02900
<b>DIVISION 3 - CONCRETE</b>	
Cast-In-Place Concrete .....	03300
Precast Structural Concrete .....	03410
Grout .....	03600
<b>DIVISION 4 - MASONRY</b>	
Mortar and Masonry Grout.....	04100
Masonry Accessories.....	04150
Unit Masonry .....	04200
<b>DIVISION 5 - METALS</b>	
Metal Fabrications.....	05500
Metal Gratings.....	05530
<b>DIVISION 6 - WOOD AND PLASTICS</b>	
Rough Carpentry.....	06100
<b>DIVISION 7 - THERMAL AND MOISTURE PROTECTION</b>	
Vapor Barrier.....	07190
Sealants and Caulking.....	07900

**DIVISION 8 - DOORS AND WINDOWS**

Fiberglass Doors and Frames .....	08225
Roll-Up Doors .....	08330
Finish Hardware .....	08710

**DIVISION 9 - FINISHES**

Painting .....	09900
----------------	-------

**DIVISION 10 - SPECIALTIES**

Fire Extinguishers .....	10522
First Aid Cabinets.....	10523
Emergency Eyewash Station.....	10524

**DIVISION 11 - EQUIPMENT**

General Process Mechanical Requirements.....	11101
Liquid Chemical Metering Pumps.....	11170
In-Line Static Mixing Equipment.....	11220
Chemical Scales .....	11340
Dissolved Air Floatation Clarification Equipment .....	11500

**DIVISION 12 - FURNISHINGS – NOT USED**

**DIVISION 13 - SPECIAL CONSTRUCTION**

Metal Building Systems .....	13341
------------------------------	-------

**DIVISION 14 - CONVEYING SYSTEMS – NOT USED**

**DIVISION 15 - MECHANICAL**

Pipe and Pipe Fittings.....	15060
Valves and Piping Specialties .....	15080
Pipe Supports .....	15094
Testing Piping Systems .....	15190
Basic HVAC Requirements.....	15500
Power Ventilators.....	15590
Electric Space Heating Units .....	15604
Louvers and Dampers .....	15605

**DIVISION 16 - ELECTRICAL**

Electrical General Requirements.....	16010
Basic Materials and Methods .....	16050
Grounding System .....	16060
Lighting Fixtures.....	16500
Electrical Service.....	16210

Battery Emergency Lighting Units .....	16530
Exhaust Fan Control Panel.....	16900
Instrumentation .....	16920

**DIVISION 17 -PROCESS CONTROL – NOT USED**

**APPENDIX A – GEOTECHNICAL ENGINEERING REPORT**

**APPENDIX B – EQUIPMENT PROPOSAL FOR DAF CLARIFIERS & FLOCCULATION TANK**

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**SECTION 01000  
GENERAL REQUIREMENTS**

**PART 1 – GENERAL**

**1.01 USE OF GENERAL REQUIREMENTS**

- A. These General Requirements of the Special Provisions are hereby made a part of the Contract.

**1.02 DESCRIPTION OF WORK**

A. WORK COVERED BY CONTRACT DOCUMENTS

1. The work to be done under this contract includes furnishing all labor, materials and equipment and performing all work required for the construction of the Water Treatment Plant Clarifier project complete in place, and ready to operate.
2. The Town of Emmitsburg, MD (Town) owns and operates a conventional water treatment plant (WTP) that treats surface water primarily from the Town's Rainbow Lake Reservoirs.
3. The Town desires to construct a new stand-alone clarifier facility upstream of the existing water treatment plant to provide pretreatment of the raw water prior to final treatment at the water treatment plant. The objective of the project is to clarify the raw water to increase filter run durations at the water treatment plant.
4. The work under this Contract generally includes, but is not limited to:
  - Construct a new Clarifier Facility to include two Dissolved Air Flootation (DAF) clarifier units housed within a pre-engineered building.
  - All other work required to complete the proposed improvements identified in the contract drawings and specifications.
5. The work includes all requirements to provide a fully finished and operable facility including miscellaneous items and operations as shall be indicated, shown, specified or required to complete the work in strict conformity with the Contract Documents. The work also includes all specified, indicated and shown mechanical and electrical equipment, appliances, appurtenances, furnishings, instrumentation and controls, accessories, tests and sundry parts and material as shall be necessary and required for a completely operable installation satisfactory to the Engineer.

6. The Drawings and written Contract Documents are intended to indicate as clearly as practicable the work to be done. The Contractor must realize, however, that construction details cannot always be accurately anticipated and that in executing the work, field conditions may require reasonable modifications in the details of the Drawings and the work involved. Work under the Contract shall be carried out to meet these field conditions to the satisfaction of the Engineer and in strict conformance with his instructions, the Drawings, the Specifications, and conditions and covenants of the Contract Documents in accordance with their true intent and full meaning.

### **1.03 NOT USED**

### **1.04 BORINGS AND TEST PITS**

- A. A geotechnical investigation consisting of two soil borings and a geotechnical engineering report was performed for this project. The locations of the borings are identified on the contract drawings and a copy of the geotechnical engineering report prepared by Findling, Inc. dated December 1, 2021 is included under Appendix A of these specifications. Neither the Town nor the Engineer warrants or guarantees the subsurface conditions and/or materials that will be encountered in the prosecution of the work and/or any part thereof.
- B. All known subsurface lines, pipes, conduits and structures are shown on the plans and profiles. These lines are shown based upon the best available plans and maps. The locations have not been verified by test pits and the Town assumes no responsibility for the accuracy of the Drawings. In any area where the Contractor must make connections to or cross existing lines, it shall be his responsibility to test pit the lines and verify the locations to his satisfaction. In the event that lines are not found located as shown on the plans, the Contractor shall notify the Engineer so that an evaluation can be made as to the magnitude and methods of any adjustments in the plans.
- C. The Contractor shall be solely responsible for all damage to underground or aboveground lines encountered in any manner during construction. When crossing and working in the vicinity of existing lines, it shall be the Contractor's responsibility to properly support and maintain the operation of the lines. Extreme care must be exercised in excavation and backfill operations. The Contractor shall correct, at his own expense, all damage caused to existing lines.

### **1.05 INTERFACE WITH EXISTING FACILITIES**

- A. The Contractor's attention is directed to the fact that the existing raw water pipeline is an integral component of the Water Treatment Plant. The treatment plant must be maintained in continuous operation at all times during the course of work under this contract, except for the shutdown periods permitted under the conditions described in this section.

### **1.06 COORDINATION OF TRADES**



- A. Where the work of any trade will be installed in close proximity to the work of other trades, or where there is evidence that the work of any trade will interfere with the work of other trades, the Contractor shall work out space allocations to make satisfactory adjustment. If so ordered by the Engineer, the Contractor shall prepare composite working drawings and sections at a suitable scale, not less than ¼-inch equals one foot, clearly showing how work is to be installed in relation to the work of other trades. If the Contractor permits any work to be installed before coordinating with the various trades or so as to cause interference with the work of other trades, he shall make necessary changes in the work to correct the condition without extra cost to the County.
- B. The Contractor shall arrange that each trade determine the location, size, and arrangement of all chases and openings and shall establish clearances in concealed spaces required for the proper installation of its work and shall see that such are provided.

#### **1.07 PRECONSTRUCTION CONFERENCE**

- A. Before starting the work, a conference will be held to establish procedures for coordination/interfaces, handling shop drawings and other submissions, and for the processing of applications for payment. Among those present at the conference will be the Contractor and his Superintendent, Town Representatives, and the Engineer.
- B. The Engineer will arrange for and organize the preconstruction conference.
- C. The purpose of the conference is to designate responsible personnel and establish lines of communication. Matters requiring coordination will be discussed and procedures for handling such matters established. The preliminary agenda will include:
  - 1. Contractor's Progress Schedule and Schedule of Values
  - 2. Transmittal, review and distribution of Contractor's submittals
  - 3. Maintaining record documents
  - 4. Critical work sequencing
  - 5. Field decisions and change orders
  - 6. Use of premises, office and storage areas, security, housekeeping and the Town's needs
  - 7. Major equipment deliveries and priorities
  - 8. Contractor's assignments for safety and first aid
- D. The Engineer will preside at the conference and will arrange for keeping the minutes and distributing the minutes to all persons in attendance.

#### **1.08 PROGRESS MEETINGS**

- A. Project progress meetings will be held monthly to review the progress and schedule of the work. The Contractor shall make his Project Manager and Field Superintendent available for said progress meetings and to meet the Town and Engineer on-site.

### **1.09 AUTHORITY OF FACILITY SUPERINTENDENT**

- A. The Water Treatment Plant (WTP) Superintendent is responsible for the public health and safety of Town plant personnel, the security of the plant property and compliance with the facility. He exercises sole authority over plant personnel and, may as required, control the conduct of the Contractor's forces by request to the Engineer.
- B. The WTP Superintendent has the authority to modify or stop operations of the Contractor's work forces which might cause contamination of the plant water supply or interfere with plant processes. Such orders will be relayed through the Engineer except in case of an emergency.
- C. The WTP Superintendent will not direct the Contractor or his work forces in areas of the Contractor's responsibility for construction, workmanship and progress of work or changes in contract scope. Such direction if and as appropriate will be provided solely by the Engineer.
- D. All requests by the Contractor for operation of valves, gates, pumps or other plant equipment will be coordinated by the WTP Superintendent or his designated representative through the Engineer.

### **1.10 ADDITIONAL MATERIAL AND/OR EQUIPMENT**

- A. Because of the small scale of the drawings, it is not possible to indicate all offsets, fittings and accessories which may be required. The Contractor shall carefully investigate the structural and finish conditions affecting his work and shall arrange his work accordingly, providing such fittings, valves, transitions, pull or junction boxes, and accessories as may be required to meet such conditions, at no additional cost to the County.

### **1.11 SINGULAR NUMBER**

- A. Where material, a device, or part of the equipment is referred to in the singular number, it is intended that such reference shall apply to as many items of material, devices or parts of equipment as are required to complete the installation.

### **1.12 EQUIPMENT UNIFORMITY**

- A. All pumps, valves and other multiple-unit equipment within its use category shall be the product of a single manufacturer.

**1.13 SPARE PARTS AND TOOLS**

- A. Spare parts shall be provided as specified in the various sections of the Special Provisions. Spare parts lists and books shall be included in the Operation and Maintenance Manuals.
- B. Special tools required for the normal maintenance of each piece of equipment shall be provided and shall be identified with the tool number corresponding to the number in the Operation and Maintenance Manuals.
- C. The Contractor shall provide the Engineer a consolidated list of all spare parts, special tools and lubricants furnished.
- D. The Contractor shall deliver spare parts, special tools and lubricants to the site for inventory by the Town, and shall place them in the storage areas designated by the Town. The manufacturer shall prepare all items for storage including necessary packaging and shall clearly label the unit for which the items are intended, using the equipment nomenclature employed in the Contract. The manufacturer shall provide any special written instructions necessary for the proper care of spare parts in storage.

**1.14 NOT USED**

**1.15 NOT USED**

**1.16 NOT USED**

**1.17 CERTIFICATION OF MATERIALS AND INSTALLATIONS**

- A. The Contractor shall furnish certification from each manufacturer, or from an approved testing laboratory, that all material used in the work is in accordance with these and all referenced specifications. Upon completion of the work, and before acceptance by the Town, the Contractor shall furnish the Town with a certificate from each of the manufacturers that the equipment and material furnished by him has been erected and installed in a satisfactory manner and is ready for continuous service and operation.
- B. Machinery and equipment for which manufacturer certification is specified will not be accepted, nor payment made therefore, without such certification. The Engineer reserves the right, however, to reject such certification when in his judgment, equipment and materials have been improperly installed or show evidence of unsatisfactory operation.

- C. Certification shall be prepared as follows:

“Having inspected the following items of equipment (Insert here serial number and complete description of equipment) at rest and in operation, and having made all requisite service adjustments and calibrations, I hereby certify that the above listed items have been properly installed, serviced, adjusted and calibrated and are ready for continuous operation under specified conditions of service when maintained in accordance with the manufacturer’s published instructions attached hereto.”

\_\_\_\_\_

Date

\_\_\_\_\_

Name

- D. Certification shall be provided on the manufacturer’s letterhead.

**1.18 FACILITY START-UP, DEMONSTRATION PERIOD AND OPERATOR TRAINING**

- A. When specified in individual sections of these Special Provisions, upon completion of all work for a particular section, the Contractor shall furnish at no extra cost to the Town, the necessary manufacturer’s engineers, representatives, technicians, skilled labor and helpers and shall perform all startup activities as required. During startup, the manufacturer’s designated personnel shall fully inspect, test, calibrate, lubricate, operate and certify the equipment for which they are responsible.
- B. When a manufacturer’s representative is not required to perform startup activities for a particular piece of equipment, the Contractor shall perform any required startup activities in strict accordance with the manufacturer’s instructions.
- C. If the Operation and Maintenance Manuals specified hereinafter are not available at the time of the startup, the Contractor shall provide one copy of the manufacturer’s operating literature for each system or item of equipment. Installation and operating sheets or booklets normally shipped with equipment may be used for this purpose.
- D. Prior to starting up and operating any and all equipment installed, the Contractor shall notify the Town. All lubrication and starting up of the equipment shall be done in the presence of and to the complete satisfaction of authorized representatives of the Town, and in accordance with all manufacturer’s recommendations.
- E. The Contractor shall schedule the startup for a time mutually agreeable with the Engineer and the Town, and shall provide a minimum of one week notice prior to the desired date.
- F. Prior to beginning the 30-day demonstration period, the Contractor shall complete the following:
1. All shop drawings shall be submitted and approved.
  2. All equipment Warranty and Certification Forms and manufacturer’s certifications shall be completed and submitted, and all witness testing conducted and completed as required.
  3. All startup activities shall be completed.

4. All test reports shall be submitted and approved.
  5. All project photographs shall be submitted.
  6. All Operation and Maintenance Manuals shall be submitted and approved.
  7. A final walk-through of the facility shall be conducted by the Contractor with the Town and Engineer in order to generate the Deficiency List for the project. Provide the Town and Engineer two weeks notice prior to the desired date.
  8. Any items on the Deficiency List that are designated as requiring completion prior to the 30-day demonstration period shall be completed.
  9. Any item on the Deficiency List not designated as requiring completion prior to the 30-day demonstration period shall be completed prior to the end of the 30 –day demonstration period.
  10. All spare parts shall be delivered to the Town, and signed receipts submitted for record.
  11. All SCADA communications between the new Chemical Building and the control room located in the main WTP building shall be installed and fully operational.
  12. The site shall be thoroughly cleaned, and any finishes requiring touchup shall be completed.
  13. The 14-day reliability test specified in Division 16 shall be completed and approved by the County and the Engineer.
- G. After all the above items have been successfully completed, the Contractor shall receive notice from the Town that he may begin the 30-day demonstration period.
- H. During the 30-day demonstration period, the Contractor shall conduct all required training for the newly installed equipment. Training activities shall be performed separately from manufacturer’s startup activities, and shall be held on separate days unless approved otherwise. Coordinate schedule of training with County and provide a minimum of two weeks notice for each session.
- I. If problems occur during the 30-day demonstration period that are designated by the Town and Engineer to be of significant magnitude, the problems shall be satisfactorily corrected, and the 30-day demonstration period shall restart from the beginning.
- J. After Successful completion of the 30-day demonstration period, as shall be at the sole discretion of the Engineer, all required training, all Deficiency List work, and all final cleanup, the Contractor shall schedule a follow up walk-through with the Town and Engineer to verify compliance with all requirements.

#### **1.19 MATERIAL SAFETY DATA SHEETS**

- A. The Contractor shall submit to the Engineer a Material Safety Data Sheet (MSDS) for all materials brought onto the site. All MSDS sheets will be in a clearly labeled binder (MSDS Sheets) in alphabetical order and turned over to the Engineer. The Engineer will place the MSDS Sheets in a location so that all personnel have access to the information.

#### **1.20 WORKING AREA**

- A. The Contractor shall not occupy with men, tools, equipment, or materials any part of the WTP property outside of the designated areas shown on the Drawings or established by the Engineer and the Town.

#### **1.21 CONTRACTOR STORAGE AREA**

- A. A storage area has been assigned on the plant site, as generally shown on the Drawings, for use by the Contractor for storage of his materials, tools, equipment, and other items necessary for construction. The exact limits of the areas will be designated in the field by the Engineer. The Contractor shall be fully responsible for the security of this area, including fencing, watchmen, and other means of security. Under no circumstances will the Town be responsible for the security of any property belonging to the Contractor, his subcontractors, or any of his work force.
- B. The Contractor shall not use any portion of the plant site for storage of his property, except as specified.
- C. The Contractor shall grade and stabilize a portion of the assigned storage area for a temporary mobilization and parking area for his use during the contract period and shall restore the entire storage area to its original condition upon completion of the project.

#### **1.22 NOT USED**

#### **1.23 CONFINED SPACE REQUIREMENTS**

- A. The Contractor shall follow all confined space procedures in accordance with the Contractor's confined space program.
- B. A copy of the Contractor's confined space program shall be submitted to the Engineer for information purposes at the pre-construction meeting.

#### **1.24 WORKING HOURS**

- A. Work shall be performed according to and completed within the contract time stipulated in the Proposal, including weekends and holidays. The contract time stated herein shall include the time needed by the Contractor for preparation and approval of shop drawings and procurement and assembly of equipment and materials as well as construction Work.
- B. Work shall be limited to weekdays (Monday through Friday) and shall commence no earlier than 7:00 A.M. nor proceed later than 5:00 P.M. The Contractor shall obtain prior written approval from the Engineer to conduct work outside this timeframe for Work that requires existing plant shutdown. During plant shutdown periods, the Contractor may work modified periods and times as approved by the Engineer to

complete the Work within the limited shutdown duration. Work is subject to other limitations in this contract.

- C. No work requiring the presence of the Engineer or an Inspector will be permitted on Sunday, on legal County holidays, or on County designated Service Reduction Days, except in cases of emergency, and then only to such extent as is absolutely necessary and with written permission of the Engineer.
- D. In case the Contractor desires to work on any Saturday, Sunday or legal holiday, he shall so inform the Engineer in writing at least two full work days in advance. He shall indicate the nature of the emergency, his desire to work and the location at which work will be conducted.

### **1.25 SCHEDULE OF VALUES**

- A. In order to determine the amount of the monthly estimate, the successful Contractor shall furnish a complete breakdown of his total bid, also referred to as a Schedule of Values. The Contractor shall furnish this information within ten (10) days after receipt of Notice-to-Proceed. The breakdown will, in general, follow the outline of the specification items. Upon approval by the Engineer, the breakdown shall be the basis for calculating the amount of monthly estimates specified in the Standard Specifications.

### **1.26 CONSTRUCTION SEQUENCING, COORDINATION AND SCHEDULING**

- A. Construction shall interfere to the least extent possible with the operation of the Water Treatment Plant. As the plant is essential to the treatment of drinking water supply for Town of Warrenton, changes or disruption to the plants normal operational procedures and schedule must be avoided whenever possible to ensure compliance with water quality and production requirements.
- B. Shutdown periods permitted for connection of new equipment and facilities to existing equipment and facilities shall be as described herein. Shutdown durations shall be mutually agreed upon by the WTP Superintendent and the Contractor.
- C. The Water Treatment Plant is operational typically 16-hours every day generally between the hours of 6:00 am and 9:00 pm. The water treatment plant must remain in service during these times. Shutdowns shall be restricted to weekdays between the nighttime hours of 10:00:00 AM – 5:00 PM. All plant shutdowns shall be subject to Town approval based on system operating conditions at the time of construction.
- D. The Contractor shall submit a written request for each plant shutdown for Engineer and Town approval at least four (4) weeks in advance. Contractor submitted requests for plant shutdown shall include a schedule and written detailed description of the proposed construction procedures to occur during the shutdown period. Information submitted to the Engineer shall include a complete inventory of materials and equipment needed to perform the work. No shutdown of a facility or operation will be permitted until the Engineer has reviewed and approved in writing the proposed construction plans and procedures.

- E. In order to reduce each shutdown period to a minimum, the Contractor shall, prior to each shutdown request expedite the completion of the work to the fullest extent. The Contractor shall have completed all necessary preparatory work including testing and shall have adequate personnel available to keep each shutdown period to a minimum. All equipment and materials required to complete the work during a shutdown period shall be on the job site before the shutdown is commenced.
- F. Insofar as possible, equipment and facilities shall be tested and in operating condition before the final tie-ins are made which connect new equipment and facilities to existing equipment and facilities.
- G. If work during any shutdown period is not done satisfactorily, or as planned, or within the maximum time allocated, or if operation is adversely affected, the Town may order the Contractor to place the facility or operation back in service and reschedule the work. The Town may order the work required to place the facility or operation back in service to be completed with other forces at the Contractor's expense.
- H. The Contractor shall prepare a project schedule in Gantt Chart format which indicates the critical path. The schedule shall indicate when the shop drawing submittal list will be submitted. The schedule shall reflect the following requirements and constraints, which was developed to enable water treatment to be maintained to the maximum extent possible during construction.

#### **1.27 PHOTOGRAPHIC REPORTS**

- A. The Contractor shall submit each month during construction not less than ten (10) 8" x 10" digital photographs (color prints and electronic files) to the Town, as outlined and stipulated hereinafter. All color prints shall have a 2" x 3" label in the lower right corner with the contract number, job name, Owner's name, Engineer's name, date and a short description.
- B. The Town, or its representative, shall have the right to designate the origin points of the photographs and the desired scope or perception of the photographs which are intended to give a complete picture of the status of the project. The photographs shall be taken by a person or firm experienced in such work and approved by the Engineer.
- C. The cost of the aforementioned will not be a pay item, but shall be included in the lump sum price bid and no additional compensation to the Contractor will be considered.

#### **1.28 NAMEPLATES**

- A. The Contractor shall provide and install corrosion-resistant metal nameplates, with data engraved or stamped, for permanent attachment on all equipment. The data shall include the manufacturer, product name, model number, serial number, capacity, size, operating and power characteristics, and other essential data, as applicable for the particular equipment. The nameplates shall be permanently



fastened to the equipment in a location that is accessible and visible, in a manner suitable for the particular equipment.

- B. In addition to the manufacturer's nameplates, all equipment, including such items as unit heaters, fans, pumps, compressors, tanks, etc. shall be permanently identified by name and number corresponding to the as-built drawings with nameplates which shall be engraved and laminated black-on-white finish phenolic nameplates. Data and installation shall be approved by the Engineer. Nameplate letters shall be minimum 2-inch high etched white letters and beveled white trim. Nameplates for motor control center, and control and metering or instrument panels shall be provided with 3/8-inch high letters. Motors shall be identified by the same number as the driven unit. Identifying characters shall be not less than 2-inches high and shall be painted. Decals, Rotex, or Dymo field applied labels will not be acceptable. All nameplate data shall be reproduced in the Operating and Maintenance Manuals.
- C. The Contractor shall provide Department of Transportation (DOT) Hazardous Information Placards conforming to the National Fire Protection Association (NFPA) Code No. 704M and Federal Standard 313. One placard each (two total) shall be installed in easily visible locations as directed by the Engineer on the exterior of the Filter Building and the Chemical Building. Placards shall be made of premium outdoor grade vinyl, 10 ¾ inch square and indicate following hazards:
- |                           |     |                      |
|---------------------------|-----|----------------------|
| Fire Hazard (red) =       | 0   | (Will not burn)      |
| Health Hazard (blue) =    | 1   | (Slightly hazardous) |
| Reactivity (yellow) =     | 0   | (Stable)             |
| Specific Hazard (white) = | OXY | (Oxidizer)           |
- D. The Contractor shall provide the building nameplate sign "**CHEMICAL BUILDING**" to be installed on the exterior of the Chemical Building. Specific location shall be as directed by the Engineer. Building nameplate sign shall be white and shall match the existing building sign on the Filter Building in size, material, font and appearance.

## 1.29 OPERATION OF EXISTING VALVES

- A. Any existing valves that need to be operated during the course of construction shall be operated by County personnel only. The Contractor shall notify the Town a minimum of one week prior to the date for operation of the valves.

## 1.30 MEASUREMENT AND PAYMENT

### A. GENERAL

Measurement and payment shall be in accordance with General Provision GP-9. Work completed under this Contract will be made at the lump sum and unit prices bid as shown on the Proposal and as described in this section. Except where a specific unit price bid item is provided for in the Proposal, all work shall be included in the lump sum items shown. The absence from the Proposal form of bid items

specifically described in the Contract Documents shall be interpreted as meaning that the cost of any such work contemplated by the Contract Documents shall be included in the lump sum prices bid. The Total Bid Amount shall include all lump sum bid items and contingency items.

The method of measurement and payment described in this section supersedes the "METHOD OF MEASUREMENT" and "BASIS OF PAYMENT" portion of each section in the Standard Specifications Divisions 1 through 10, unless specifically noted otherwise. Thereby, DELETE the provisions of "METHOD OF MEASUREMENT" and "BASIS OF PAYMENT" from each section of the Standard Specifications in Divisions 1 through 10, unless specifically noted otherwise.

The lump sum and unit prices shall include the furnishing of all labor, tools, equipment, materials and services and the performance of all work required to complete the Contract as indicated and specified in accordance with all requirements of the Contract Documents and to the satisfaction of the Engineer.

**B. BID OR PROPOSAL PAYMENT ITEMS**

**Item No. 1 – Water Treatment Plant Clarifier**

1. Item No. 1 - Water Treatment Plant Clarifier shall include all work and shown and specified in the Contract Documents.
2. Payment for work completed under this item will be made at the lump sum price bid for Item No. 1 – "Water Treatment Plant Clarifier" on the Proposal

**PART 2 – PRODUCTS**

(NOT USED)

**PART 3 – EXECUTION**

(NOT USED)

**END OF SECTION 01010**

**SECTION 01300  
SUBMITTALS**

**PART 1 - GENERAL**

**1.01 DESCRIPTION**

This Section includes general requirements and procedures related to the Contractor's responsibilities for preparing and transmitting Submittals to the Engineer to demonstrate that the performance of the Work will be in accordance with the Contract requirements. Submittals include Samples, Manuals, Methods of Construction, and Record Drawings. Other requirements for submittals are specified under applicable sections of the Contract Documents.

**1.02 SUBMITTAL REQUIREMENTS**

- A. Within 10 days after the date set forth in the Notice to Proceed, submit a Construction Schedule.
- B. Submittals shall be scheduled and coordinated with the Contractor's Construction Schedule.
- C. A complete submittal schedule and list of required submittals shall be submitted with the first submittal but not later than 20 days after the Notice to Proceed. The schedule for submission of submittals shall be arranged so that related equipment items are submitted concurrently.
- D. Procedure for submittals concerning substitutions shall be as stated in Section 01600.
- E. Transmit all submittals to: Rummel, Klepper & Kahl, LLP, 700 E. Pratt Street, Suite 500, Baltimore, Maryland 21202.

**1.03 CONTRACTOR'S DRAWINGS**

- A. Shop Drawings

Shop drawings shall show types, sizes, accessories, layouts including plans, elevations and sectional views, component, assembly and installation details, and all other information required to illustrate how applicable portions of the Contract requirements will be fabricated and/or installed. In case of fixed mechanical and electrical equipment, layout drawings drawn to scale, shall be submitted to show required clearances for operation, maintenance, and replacement of parts. Include manufacturer's certified performance curves, catalog cuts, pamphlets, descriptive literature, installation, and application recommendations, as required. Additional shop drawings and information required for electrical and mechanical equipment will be listed in appropriate Specification Sections. Shop drawings for continually furnished items such as pipe, fittings, valves, precast structures, and metal work will be waived provided the Contractor submits a letter naming the manufacturer who

will furnish these items and provided this manufacturer has on file a certified standard drawing containing the above information which has been approved by the Engineer. If the Standard Details or Specifications change, new submittals will be required.

B. Catalog Data

Manufacturer's catalog, product and equipment data shall be certified and shall include materials type, performance characteristics, voltage, phase, capacity, and similar data. Provide wiring diagrams when applicable. Indicate catalog, model and serial numbers representing specified equipment. Provide complete component information to verify all specified required items.

C. Working Drawings

1. Submit working drawings as required for changes, substitutions, contractor design items, and Contractor designed methods of construction. Requirements for working drawings will be listed in appropriate Specification Sections. Drawings shall be accompanied by calculations or other information to completely explain the structure, machine or system described and its intended use. Review and approval of such drawings by the Engineer shall not relieve the Contractor from his responsibility with regard to the fulfillment of the terms of the Contract. All risks of error are assumed by the Contractor and the Engineer shall have no responsibility therefore.
2. Working drawings and calculations as submitted shall be sealed, dated and signed by a Professional Engineer registered in the State of Virginia.

D. Method of Construction

When so specified or directed by the Engineer, submit proposed method of construction for specific portions of the Work for review and approval. This submittal shall include detailed written description of all phases of the construction operation to fully explain to the Engineer the proposed method of construction. If required by the Specifications, submit working drawings to supplement description. Review and approval by the Engineer will be in accordance with approval process herein and shall not relieve the Contractor from his responsibility with regard to fulfillment of the terms of the Contract. All risks associated with the proposed method remain the Contractor's responsibility and the Engineer shall have no responsibility therefore. After review and approval, if, in the opinion of the Contractor, modifications are necessary, submit such modifications in detail including reasons for the modifications. Modifications shall not be implemented without review and approval by the Engineer.

E. Manufacturer's Installation Recommendations

Manufacturer's installation recommendations and instructions shall provide written detail, step-by-step preparation and installation of the materials, and products including recommended tolerances and space for maintenance and operation.

F. Submittal Process

1. General

Each Contractor's drawing submitted by the Contractor shall be accompanied by a transmittal letter and the shop drawing shall have affixed to it the following Contractor's Stamp, signed by the Contractor:

Statement:

\_\_\_\_\_ (Contractor's name) represents that we have determined and verified all field dimensions and measurements, field construction criteria, materials, catalog numbers, and similar data, and that we have checked and coordinated such submittals with the requirements of the work and the contract documents.

By: \_\_\_\_\_ Date: \_\_\_\_\_

2. Identification

With the first submittal, submit a Contractor's drawing submittal schedule, listing as near as practicable by Specification Section number, all submittals required and approximate date submittal will be forwarded. All submittals for approval shall have the following identification data, as applicable, contained thereon or permanently adhered thereto.

- a. Project Name
- b. Submittal Numbers. Number sequentially as submitted. Resubmittals shall bear original submittal number and be lettered sequentially.
- c. Product identification
- d. Drawing Title, Drawing Number, Revision Number, and date of drawing and revision.
- e. Applicable Contract Drawing Numbers and Specification Section and Paragraph Numbers.
- f. Subcontractor's, Vendor's and/or Manufacturer's Name, Address and Phone Number.
- g. Contractor's Certification Statement.

For catalog product data or brochures submitted in packages of multiple items need the identification only on the exterior. In such instances the identification shall include page and catalog item numbers for items submitted for approval. If one or more of the items in such a submittal are not approved, resubmittal of only the unapproved items is required. Catalog, product data or brochures containing various products, sizes and materials shall be highlighted to show the particular item being submitted. Likewise, items not

applicable to the Contract shall be marked "not applicable" or crossed out.

3. Number of Copies

For original submittal and each subsequent resubmittal that may be required, submit a minimum of five (5) legible prints each of all shop and working drawings, and catalog data, method of construction and manufacturer's installation recommendation to the Engineer for approval. The Contractor may furnish greater than the minimum if required for subcontractors and vendors.

4. Approval Process

Each submittal shall be in accordance with the Contractor's drawings submission schedule. Allow 20 working days for checking and appropriate action by the Engineer.

Contractor's drawings will be returned, stamped with one of the following classifications:

REVIEWED: no corrections, no marks

REVIEWED AS NOTED: a few minor corrections. All items may be fabricated as marked without further resubmission.

RESUBMIT: Resubmit drawings as per original submission with corrections noted. Allow 10 working days for checking and appropriate action by the Engineer.

REJECTED: requires corrections or is otherwise not in accordance with the Contract Documents. No items shall be fabricated. Correct and resubmit drawings as per original submission. Allow 10 working days for checking and appropriate action by the Engineer.

## 1.04 SAMPLES

A. General

As soon as practicable after the Notice to Proceed, submit samples required by the Specifications or requested by the Engineer. Unless otherwise specified, the original submittal shall be one (1) sample of each item. Approval shall be obtained prior to delivery of the material to the Contract site. Such samples shall be representative of the actual material proposed for use in the project and of sufficient size to demonstrate design, color, texture, and finish when these attributes will be exposed to view. If samples deviate from the Contract Documents, the Contractor, shall so advise the Engineer in writing with the submittal and state the reason therefore.

B. Identification

1. Each sample shall have the following identification data permanently

attached.

- a. Contract Number
- b. Project Name
- c. Product Identification
- d. Applicable Contract Drawing and Specification Section Number
- e. Subcontractor's, Vendor's and/or Manufacturer's Name, Address and Phone Number

2. Mail under separate cover a letter submitting each shipment of samples containing the identification information listed herein. Enclose a copy of this letter with the shipment.

C. Approval Process

To enable the Engineer to take appropriate action and/or testing, 20 working days will be allowed for sample approval. Certain samples may be tested for specified requirements by the Owner before approval is given. Failure of a sample to pass such tests will be sufficient cause for refusal to consider further samples of the same brand and make of that material. Rejected samples will be returned upon request and any or all resubmittals required shall consist of three new samples and an additional 20 days. Only one test of each sample proposed for use will be made at the expense of the Owner. When originally submitted sample fails, retesting of additional samples will be made by the Owner at the expense of the Contractor. Upon approval, one sample so noted will be returned and the remainder will be retained by the Engineer until completion of the Work. When requested, all approved samples will be returned for installation provided their identity is maintained in approved manner until Final Acceptance of the Project.

Samples of various material or equipment delivered to the site or during placement may be taken by the Engineer for testing. Samples failing to meet Contract requirements will automatically void previous approvals and resubmittal of samples will be required.

**1.05 RECORD DRAWINGS (AS-BUILTS)**

- A. The Contractor shall provide record drawings for all work performed and keep one record copy of all Contract Documents, at the site in good order and annotated to show all revisions made during construction. Such annotations shall be kept current and are subject to unannounced review by the Engineer and Owner. Failure to maintain current record drawings will be cause to delay progress payments. Record drawings shall be available to the Engineer at all times during the life of the Contract. Upon request, the Engineer will provide one set of reproducibles of the original Contract Drawings and a sample record drawing showing required style and quality, for this purpose.

All drawings shall be made a part of the record drawings and shall include the following:

1. Contract Drawings

Annotate or redraft, as required, to show all revisions, substitutions, variations, omissions and discrepancies made or discovered during construction concerning location and depth of utilities, piping, conduits, pumps, valves, vaults and other equipment. Revisions shall be made and shown on all drawing views with actual dimensions and elevations established to permanent points.

2. Working Drawings

Same as requirements for contract drawings, when working drawings are required. Include, for example, actual layouts of conduit runs between various items of electrical equipment for power, control and instrumentation; wire sizes, numbers and functions; configuration of conduits; piping layouts; and duct layouts. Sections and details shall be added as required, for clarity. Drawings of motors, control centers and other equipment shall be revised to show actual installations.

Prior to preliminary inspection, furnish a reproducible of the record drawings to the Engineer. At the completion of the Contract and before final payment is made, furnish the Owner and Engineer one set of reproducibles of the record drawings reflecting all revisions herein described.

**1.06 OPERATION AND MAINTENANCE MANUALS**

- A. Furnish Operation and Maintenance Manuals for all equipment and systems to the Owner. Two preliminary copies shall be provided no later than the date of equipment shipment. The final copies shall be provided prior to equipment startup.

Six (6) copies of each manual shall be provided. A separate manual shall be furnished for each piece of equipment and/or system. The manual shall include complete information necessary to operate, maintain and repair the specific equipment and/or system furnished under this Contract and shall include the following specific requirements:

1. Contents:

- Table of Contents and Index
- Brief description of the equipment/system and principal components
- Starting and stopping procedures both normal and emergency
- Installation, maintenance and overhaul instructions which shall include detailed assembly drawings with parts list and numbers, and recommended spare parts list with recommended quantity, manufacturer's price, supplier's address and telephone number
- Recommended schedule for servicing including technical data sheets that indicate weights and types of oil, grease or other lubricants recommended for use and their application procedures
- One copy of each component wiring diagram and the system-wiring diagram showing wire size and identification
- One approved copy of each submittal with any changes made during construction properly noted including test certificates, characteristic curves, factory and field test results



- For electrical systems include dimensioned installation drawings, single line diagrams, control diagrams, wiring and connection diagrams, list of material for contactors, relays and controls, outline drawings showing relays, meters, controls and indication equipment mounted on the equipment or inside cubicles, control and protective schematics and recommended relay settings

2. Material:

Covers: oil, moisture, and wear resistant 9 X 11-1/2 inches size

Pages. 32-pound paper 8-1/2 X 11 inches size with minimum of two punched holes 8-1/2 inches apart reinforced with plastic cloth or metal

Fasteners: Metal screw post or Acco metal strap type

Diagrams and illustrations, attach foldouts, as required  
Legible original quality, reproduced by dry copy method.

The Operation and Maintenance Manual shall also be provided to the Town in electronic format as an Adobe Acrobat file. The document shall be searchable and "intelligent" with appropriate scanned images of the submittals as necessary.

**PART 2 - NOT USED**

**PART 3 - NOT USED**

**END OF SECTION 01300**

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**SECTION 01500**  
**TEMPORARY FACILITIES AND CONTROLS**

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. Section Includes:
1. This Section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security, and protection for this Project.
  2. Temporary construction and support facilities: Including installation, maintenance and removal are to be handled by the Contractor.

**1.02 RESPONSIBILITIES**

- A. Contractor shall provide the following temporary construction, utilities, facilities, and controls for the use by the Engineer.
1. Telephone service for one public phone.
  2. Field office adequate for progress meetings (and sole use of the Engineer).
  3. Temporary heat prior to building enclosure.
  4. Temporary enclosures to enclose building.
  5. Sanitary facilities including drinking water and wash facilities.
  6. Waste disposal services at building locations.
  7. Rodent and pest control.
  8. Engineering and building layout.
  9. Environmental Protection.
  10. Project Identification Sign.
- B. Contractor shall pay for electric, water, sewer and basic telephone. Utility costs for heat after building enclosure shall be paid by Contractor until the building is accepted by the Owner. Long distance and other charges in excess of basic telephone service shall be paid by entity utilizing the service.
- C. The Contractor may use the following existing facilities for which he will be back-charged by the Owner:

1. Electric and lighting. (The Contractor shall install an electric meter for the monitoring of electric used).
- D. Contractor shall provide the following:
1. Heat for the construction area after the permanent heating system is complete. Provide heating required to maintain 60°F in winter.
  2. Provide additional heat or relocate existing heat supply when existing heat is interrupted for construction.
  3. Equipment warranty not to start until building is accepted by Owner.
  4. Water service and distribution, including (site and) building.
  5. Storm and sanitary sewer connections.
  6. Protect pipes exposed during construction as required to prevent freezing.
  7. Temporary electric service to the building, including construction trailers and field office.
  8. Construction lighting where daylight is not adequate.
- E. Contractor shall be responsible for the implementation of safety programs and initiatives. These documents do not intend to define any Contractor's responsibility to safety. It is expected that the Contractor will perform their activities in a safe manner and in accordance to industry regulations including those imposed by OSHA. Similarly, these Specifications shall not be construed as defining security measures.

### **1.03 SUBMITTALS**

- A. Temporary Utilities: Submit reports of tests, inspections, meter readings and similar procedures performed on temporary utilities.
- B. Implementation and Termination Schedule: Submit a schedule indicating implementation and termination of each temporary utility within 15 days of the date established for commencement of the work.

### **1.04 QUALITY ASSURANCE**

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:
  1. Building code requirements.
  2. Health and safety regulations.

3. Utility company regulations.
  4. Police, fire department and rescue squad rules.
  5. Environmental protection requirements.
- B. If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any Work to be inspected, tested or approved, the Contractor shall give the Engineer timely notice of its readiness and of the date arranged, so the Engineer may observe such inspection, testing or approval. The Contractor shall bear all costs of such inspections, test and approvals unless otherwise provided.
- C. If, after commencement of the Work, the Engineer determines that any work requires special testing, he will, upon written authorization from the Owner, instruct the Contractor to order such special testing. If such special testing reveals a failure of the work to comply (1) with the requirements of the Contract Documents, or (2) with respect to the performance of the work with laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, the Contractor shall bear all costs thereof, including Engineer's additional services made necessary by such failure; otherwise, the Owner shall bear such costs, and an appropriate supplement shall be issued.
- D. Required certificates of inspection, testing or approval shall be secured by the Contractor and promptly delivered by him to the Engineer.
- E. Neither the observations of the Engineer nor inspections, tests or approvals by persons other than the Contractor shall relieve the Contractor from his obligations to perform the work in accordance with the Contract Documents.

#### **1.05 PROJECT CONDITIONS**

- A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of the permanent service.
- B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities or permit them to interfere with progress. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

## **PART 2 - PRODUCTS**

### **2.01 ROADWAYS**

- A. Existing Roadways: The Contractor shall maintain and clean, regularly, roadways, drives and parking areas within the site. Any damage caused by the use of these areas for construction purposes shall be repaired by the Contractor at his expense.
- B. Temporary Roadways: The Contractor shall construct and maintain roadways and parking areas within the site, as required, in order to provide proper access to building or structure(s). The roadways and parking areas shall be constructed in accordance with base course specified and shall be kept in a usable condition throughout the period of construction. Location(s) shall be coordinated with the Owner.

### **2.02 FIELD OFFICE**

- A. The Contractor shall furnish and maintain, from 5 days prior to the start of work at the project site to the date of Engineer's approval of final payment, a fully operable separate temporary field office on the construction site for the exclusive use of the Engineer; said field office and equipment shall be positioned on a proper foundation at a location acceptable to the Engineer with adjacent parking space for automobiles. Provide ground surface treatment to facilitate parking and access to the field office.
- B. Cost of the temporary office, complete as hereinafter provided, including cost of heat, air conditioning, lighting and utilities shall be paid by the Contractor and included in the Contract Price.
- C. The temporary field office shall present a neat business-like appearance, be structurally sound and weathertight, and complete with windows with louvered blinds, approved sanitary facilities, ventilation, heating, air conditioning, overhead lighting, duplex wall outlets and telephone service; all satisfactory to the Engineer. A mobile type office will be acceptable. The field office shall be identified by a sign, fabricated and painted.
- D. Size of office shall be approved by Engineer as being adequate. Minimum allowable size shall be 10 ft. x 36 ft.
- E. The temporary field office shall be secured with lock and key, each entrance with one UL 40A:10B:C dry chemical fire extinguisher, and be complete with the following items of equipment and furniture for the exclusive use of the Engineer:

- One 30"x60" Steel 2-pedestal desk w/locking drawers
- One executive swivel desk chair
- One 36"x60" drafting table and swivel drafting stool w/backrest
- One 4-drawer fireproof file cabinet w/locking drawers
- One vertical plan file rack
- One Restroom
- One 36"x72" folding meeting table

- Ten folding chairs
- One water cooler with instant hot water attachment
- One refrigerator - office size
- One telephone instrument with 8 foot cord
- One full size color copy, print and scan machine on dedicated line such as Xerox Model 7346 or Equal.
- Toner cartridges
- One telephone answering message recording service that will record all telephone calls that are received when the telephone is currently in use or unattended.
- One book case, minimum four shelves.
- Provide paper towels
- F. Provide a containerized tap-dispense bottled water type drinking unit with instant hot water in field office; maintain adequate supply of bottles.
- G. Computer Hardware: Equip the field office with one MS-DOS Computer System with the following minimum requirements.
  - 1. i.7-2620M Intel Core Processor
  - 2. 4 GB RAM
  - 3. 250 GB Hard Disk
  - 4. 17" Color LCD Monitor
  - 5. 48x CD-Rom Drive
  - 6. 1 Parallel Port
  - 7. 2 Series Ports
  - 8. 2 USB Ports
  - 9. Microsoft Compatible Mouse
- H. Xerox Machine Interface Cable
- J. Software (Either the version shown or the latest version)
  - 1. Operating System: Microsoft Windows 7 Professional
  - 2. Microsoft Word
  - 3. Microsoft Excel
  - 4. Adobe Acrobat
  - 5. Mozilla Firefox
  - 6. AutoCAD 2011

- 7. Norton Internet Security
- K. Computer Supplies/Accessories
  - 1. 6-Outlet Power Strip w/Surge Protection
  - 2. Dust covers for Computer, Keyboard, and Printer
  - 3. Mouse Pad
  - 4. (4) Boxes DVD-R 4.7 GM Disks
  - 5. 8-1/2"x11" Laser Paper (2000 sheets)
- L. Computer Furniture
  - 1. 30"x72" Computer Table (typing height)
  - 2. Height-adjustable, Posture-back Swivel Computer Chair
- M. All furniture and equipment items shall be clean, serviceable, and satisfactory to the Engineer when installed in the field office. Maintenance service, or replacement, for equipment and furniture that become unserviceable during use shall be provided within 24 hours. The Contractor shall ensure a continuous supply of disks, copy and printer paper, ink, etc. for the equipment."N. The Contractor shall provide weekly janitorial service including the disposal of trash, vacuuming and/or sweeping floors, dusting tables, desks, chairs, counters, etc.
- O. Failure to provide any service/supply within the time allotted will result in the Engineer securing the needed service/supply and crediting the Contractor's Contract Price.
- P. An exterior temperature gauge shall be provided on the field office, and said gauge shall be used as official temperature in exterior work.
- Q. Equipment furnished for field office shall be returned to the Contractor at completion of project.
- R. Contractor shall maintain a separate office of his use.

### **2.03 TEMPORARY TELEPHONE**

- A. Contractor shall have one (1) telephone installed in Engineer's field office and pay for all costs incurred, for duration of the Contract. Contractor shall provide separate telephone service for his use.
- B. Contractor will provide a dedicated service for Fax machine.



**2.04 SANITARY PROVISIONS**

- A. Contractor shall provide and maintain, in a neat and sanitary condition, suitable toilet accommodations for the use of persons on the Project, complying with the requirements or regulations of the governing body having jurisdiction thereof.

**2.05 TEMPORARY UTILITIES AND FACILITIES**

- A. The Contractor may arrange with the Owner to use existing utilities including water, heat, light and power as temporary services for the duration of the Contract.
- B. Use of electric service shall be arranged and maintained by Contractor.
- C. The Contractor shall provide extension cords and hoses for extending the existing services as required for his own use.
- D. The Owner reserves the right to terminate the use of existing facilities at any time if in the Owner's opinion the facilities are being abused.

**2.06 TEMPORARY WATER SUPPLY**

- A. The Contractor shall, at his own cost and expense, provide, protect and maintain an adequate non-potable water supply, for construction use on the Project during the period of construction, either by means of the permanent water supply line or by the installation of a temporary water supply.
- B. If there is a charge for water, said charge shall be paid by the Contractor.

**2.07 TEMPORARY ELECTRICAL LIGHT AND POWER**

- A. The Contractor shall, at his own cost and expense, install, operate, protect, have inspected and maintain a temporary electric service for construction light and power.
- B. The service to be provided, unless otherwise specifically provided, shall be a minimum 200 Amp service, single phase, three wire, 120/240 volts with fused safety switch protection and the necessary disturbing facilities and meter, if required.
  - 1. Provide electric service required for building heat during dry-in.
  - 2. All 120-volt, single phase, 15 Amp and 20 Amp receptacle outlets shall have ground fault circuit interrupter protection.
- C. The Contractor, at all times, shall provide and pay for all maintenance, servicing, operation and supervision of the service and distributing facilities necessary for maintaining temporary heat and ventilation, after same is required in the building.

**2.08 TEMPORARY HEAT AND VENTILATION**

- A. The temporary heat and ventilation requirements on this Project are divided into two (2) categories, i.e., (1) temporary heat and ventilation required prior to the enclosure

- of the building(s) or portions thereof, which shall be the responsibility of the Contractor, (2) temporary heat and ventilation required subsequent to the enclosure of the building(s) or portions thereof, which shall be the responsibility of the Contractor.
- B. A building or portion thereof shall be considered to be enclosed when the roof is on and tight, the exterior walls have been completed, and when openings, doors and windows are closed with permanent or temporary closures which will affect the retention of heat within the building.
- C. Prior to enclosures of building(s) or portions thereof and when weather conditions indicate the necessity for temporary heat, the Contractor shall provide, maintain, operate and pay all costs, including fuel, for a sufficient number of approved portable heaters, so the progress of the Work is not impeded and proper protection of all Work from freezing is maintained.
- D. The Contractor shall either operate the permanent heating and ventilating systems, if installed and operable, or he shall provide and operate portable heaters and portable ventilators. When the performance and protection of the Work require prolonged or continuous twenty-four (24) hour a day heat and ventilation in the building, the same shall be provided by the Contractor. The heat shall be provided to a minimum temperature of 50°F or to such higher temperature as may be required. Provide heat and ventilation for the proper installation of materials/equipment and for the proper conduct of the Work. The Contractor shall pay for and be responsible for the maintenance, operation and supervision of the heating and ventilating systems throughout the period that the heat and ventilation are needed and until final acceptance of the Project by the Owner.
1. The permanent HVAC system air handling units and related ductwork distribution system shall not be used for temporary heat in any area until the final wall finish is complete and ceiling support grid (where occurs) is in place; when carpet is being installed, the air handling units (in that and adjacent areas) shall be de-energized.
  2. The Contractor shall issue a written statement to the Engineer stating the Contractor has inspected and performed specified start-up, testing and balancing, and commissioning of the equipment and ductwork distribution system before it is put into service.
  3. Obtain written approval from the Engineer 48 hours before using the permanent HVAC system equipment and accessories for temporary heat.
- E. The Contractor shall be responsible to pay for all water, electricity and fuel required for the operation of the permanent systems for temporary heat and ventilation.
- F. All permanent heating and ventilating equipment used to supply temporary heat and ventilation shall be completed, cleaned and reconditioned by the Contractor prior to final acceptance. Traps, valves and filters used in a temporary system during the period of its operation to supply temporary heating shall not be reinstalled in the permanent system.

- G. The Contractor, at his own cost and expense, shall remove all soot, smudges and other deposits from walls, ceilings and exposed surfaces which are the result of the use of any temporary heating and ventilating equipment, including the use of the permanent heating and ventilating system for temporary purposes. He shall not do any finish work until all such surfaces are properly cleaned and cured.

## **2.09 ADDITIONAL VENTILATION IN OCCUPIED AREAS**

- A. The Contractor shall provide and operate portable ventilators for additional ventilation under the following conditions:
  - 1. When the performance and protection of the Work require prolonged or continuous twenty-four (24) hour a day ventilation for the proper installation of materials or equipment.
  - 2. When permanent ventilation is interrupted in occupied areas.
  - 3. Whenever adhesives, thinners or other hazardous materials are used.
- B. In occupied building, notify the Owner a minimum of forty-eight (48) hours in advance of scheduled Work involving use of hazardous materials.
- C. The Contractor shall pay for and be responsible for the maintenance, operation and supervision of the portable ventilating units throughout the period until acceptance of the Project by the Owner.

## **2.10 PROJECT IDENTIFICATION SIGNS**

- A. The Contractor shall provide and maintain project identification signs. The signs shall be erected at a location of high public visibility as directed by the Engineer. The Contractor shall obtain all necessary permits at no additional cost.
- B. Project identification sign shall be approved by Engineer for construction, graphic design, colors, and lettering and shall include:
  - 1. Title of Project
  - 2. Name of Owner
  - 3. Engineer
  - 4. Contractors
- C. Restriction of Signs: No advertising signs may be installed anywhere on the site. The Contractor's name and other information will be placed on the job sign.
- D. Remove signs upon completion of construction.
- E. The Contractor shall provide sign(s) as follows:

1. One Construction Site Sign, in accordance with Owner requirements.

### **PART 3 - EXECUTION**

#### **3.01 INSTALLATION**

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they shall serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required when requested by the Engineer.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

#### **3.02 TEMPORARY UTILITIES**

- A. The Contractor shall furnish and install all equipment, wiring, accessories, etc. to maintain all temporary electric, telephone, gas, water and sewer utilities required for general construction, start-up, and initial operation of the plant improvements including those temporary utilities required for temporary offices of the Owner and Engineer and temporary facilities to keep the existing treatment plant in operation. Temporary utilities shall be provided throughout the construction period until Substantial Completion of the entire project. All costs for providing temporary utilities required for the general construction shall be paid by the Contractor and included in the Contract Price. The Owner will pay all utility costs associated with keeping the existing treatment plant facilities in operation during the construction period.

#### **3.03 TEMPORARY UTILITY INSTALLATION**

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the company's recommendations.
  1. Arrange with the company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.
  2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
  3. Obtain easements to bring temporary utilities to the site, where the Owner's easements cannot be used for that purpose.
  4. Use Charges: Costs or use charges for temporary facilities are not chargeable to the Owner or Engineer, and will not be accepted as a basis of claims for a Change Order.

- B. Water Service: Install water service and distribution piping of sizes and pressures adequate for construction until permanent water service is in use. Installation, maintenance and removal are by the Contractor.
  - 1. Disinfection: Disinfect temporary water piping prior to use.
- C. Temporary Electric Power Service: Provide waterproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload protected disconnects, automatic ground fault interrupters and main distribution switch gear. Installation, maintenance and removal, including any fees, are by the Contractor. The Contractor shall be responsible for the monthly usage costs.
- D. Temporary Lighting: Wherever overhead floor or roof deck has been installed, provide temporary lighting with local switching. Installation, maintenance and removal are by the Contractor.
  - 1. Install, maintain, and operate temporary lighting that shall fulfill security and protection requirements, without operating the entire system, and shall provide adequate illumination for construction operations and traffic conditions.
- E. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off the site in a lawful manner. Installation, maintenance and removal are by the Contractor, including any installation fees.
  - 1. Filter out excessive amounts of soil, construction debris, chemicals, oils and similar contaminants that might clog sewers or pollute waterways before discharge.
  - 2. Connect temporary sewers to the municipal system as directed by the sewer department officials.
  - 3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. Following heavy use, restore normal conditions promptly.
- F. Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

### **3.04 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION**

- A. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access.

1. Maintain temporary construction and support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- B. Provide incombustible construction for offices, shops and sheds located within the construction area or within 30 feet of building lines. Comply with requirements of NFPA 241.
- C. Temporary Heat: Provide temporary heat required by construction activities, for curing or drying of completed installations or protection of installed construction from adverse effects of low temperatures or high humidity; select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.
- D. Heating Facilities: Except where use of the permanent system is authorized, Contractor shall provide vented self-contained LP gas or fuel oil heaters with individual space thermostatic control. All heaters must be acceptable to the Fire Marshal.
  1. Use of gasoline-burning space heaters, open flame, or salamander type heating units is prohibited.
- E. Change, Storage and Fabrication Sheds: Install change, storage and fabrication sheds, sized, furnished and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere on the site.
- F. Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures and facilities. Install where facilities will best service the Project's needs. Use of pit-type toilets will not be permitted.
  1. Provide toilet tissue, paper towels, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.
- G. Wash Facilities: Contractor shall install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition, except asbestos removal.
  1. Provide safety showers, eye-wash fountains and similar facilities for convenience, safety and sanitation of personnel.
- H. Temporary Enclosures: Provide temporary enclosure for protection of construction and existing building from exposure to inclement weather.

1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
  2. Install tarpaulins securely with incombustible wood framing and other materials.
  3. Close openings through floor or roof decks and horizontal surfaces with load-bearing wood framed construction.
  4. Where temporary wood or plywood enclosure exceeds 100 square feet in area, use UL-labeled fire retardant treated material for framing and main sheathing.
- I. Temporary Lifts, Hoists, and Scaffolding: Contractor shall assume responsibility for hoisting materials and employees. Truck cranes and similar devices used for hoisting materials are considered “tools and equipment” and not temporary facilities. Coordinate placement and use.
- J. Project Identification and Temporary Signs: Prepare temporary signs of the size required; install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative treated wood. Do not permit installation of unauthorized signs.
1. Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors.
- K. Collection and Disposal of Waste: Collect waste from the site daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80°F (27°C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner. Dumpster shall be placed in locations directed by the Engineer.

### **3.05 PARKING AND TRAILER LOCATION**

- A. All construction traffic, including employee traffic, trucking, and delivery of materials and equipment, shall be controlled by the Contractor and shall enter the site only by routes prescribed by the Contractor. Access to the site by other routes will be prohibited.
- B. The Contractor shall take all precautions to prevent tracking of mud and debris onto the streets.

### **3.06 SECURITY AND PROTECTION FACILITIES INSTALLATION**

- A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion.
- B. Temporary Fire Protection: Until fire protection needs are supplied by permanent facilities, install and maintain temporary fire protection facilities of the types needed to protect against predictable and controllable fire losses.
  - 1. Locate fire extinguishers where convenient and effective for their intended purpose.
  - 2. Store combustible materials in fire-safe locations.
  - 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
  - 4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.
- C. Permanent Fire Protection: At the earliest feasible date in each area of the Project, complete installation of the permanent fire protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.
- D. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting, including flashing red or amber lights.
- E. Security Enclosure and Lockup: Contractor shall provide protection against vandalism, theft and similar violations of security; Owner shall not be responsible for costs associated with these occurrences.
- F. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by means that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints.

### **3.07 OPERATION, TERMINATION AND REMOVAL**

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.



- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
  - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis where required to achieve indicated results and to avoid possibility of damage.
  - 2. Protection: Prevent water filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
  
- C. Termination and Removal: Unless the Contractor or Engineer requires that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.
  - 1. Materials and facilities that constitute temporary facilities are property of the party furnishing the facility
  - 2. At Substantial Completion, clean and renovate permanent facilities that have been used during the construction period, including but not limited to:
    - a. Replace air filters, and clean inside of ductwork and housings.
    - b. Replace lamps that are burned out or noticeably dimmed by substantial hours of use.

**END OF SECTION 01500**

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**SECTION 01700  
PROJECT CLOSEOUT**

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:
1. Inspection procedures.
  2. Project record document submittals.
  3. Operating and maintenance manual submittal.
  4. Release of liens.
  5. Submittal of warranties.
  6. Final cleaning.

**1.02 REQUIREMENTS OF REGULATORY AGENCIES**

Conduct cleaning and disposal operation to comply with codes, ordinances, regulation, and anti-pollution laws.

**1.03 SUBSTANTIAL COMPLETION**

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the work claimed as substantially complete. Include supporting documents for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
  2. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
  3. Advise the Owner of pending insurance change-over requirements.
  4. Submit to the Engineer specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.

5. Obtain and submit releases enabling the Owner unrestricted use of the work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
6. Submit to the Engineer record drawings, maintenance manuals, and similar final record information.
7. Deliver spare parts, extra stock, and similar items to the Owner via the Engineer.
8. Complete start-up testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change-over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
9. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.

#### **1.04 FINAL ACCEPTANCE**

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
  1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
  2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
  3. Submit a certified copy of the Engineer's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Engineer.
  4. Submit consent of surety to final payment.
- B. Reinspection Procedure: The Engineer will reinspect the work upon receipt of notice that the work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Engineer.

#### **1.05 RECORD DRAWINGS**

- A. The Contractor is required to keep an up-to-date set of Record Drawings (As-Constructed Drawings) for the project. In addition, the Contractor shall identify the location of all new piping installed, existing piping to remain and existing piping to be abandoned as it is installed or uncovered during the construction period. No trenching for piping shall be backfilled until the piping has been located by the Contractor. The Contractor shall also identify the location of all buried or

embedded conduits and duct banks including new work and existing to remain or to be abandoned as it is installed or uncovered during the construction. Up-to-date is defined as containing modifications for work performed within the past 30 days. The record drawing information shall include but not be limited to the following:

1. All dimensional changes. Degree of dimensioning shall equal that of the original drawing except for the yard piping and site electrical drawings. The Record Drawing dimensioning for the yard piping and site electrical (buried or embedded conduits and duct banks) drawings shall include as a minimum both horizontal locational dimensioning from above grade permanent structure and elevation at each location where the process piping and electrical work enters or leaves a structure and at each change in direction. In addition, where the buried process piping and electrical work parallels the wall of a structure, horizontal dimension from the structure and elevation shall be provided at a minimum of two locations.
  2. Electrical breaker designations for each circuit such as receptacles, lights, heaters, etc.
  3. All internal piping valve and fitting modifications. Degree of detail shall be equal to that of the original drawing.
  4. All structural reinforcement modifications.
  5. All electrical conduit size and routing wire size and wiring quantity modifications, wiring number and tagging assignments.
  6. All site work modifications such as roadways, sidewalks, grading, etc.
- B. The Engineer will review the status of the Contractor's record drawings on a monthly basis. If the record drawings do not meet the requirements stated above, 10% of the succeeding progress payments, in addition to the normal contract retaining, will be withheld until such time as the record drawings are brought into compliance.
- C. The Contractor shall make the record drawings available to the Engineer whenever requested for reproduction by the Engineer so that he can begin preparation of the final record drawings to be supplied to the Owner.
- D. At the end of the project, the Contractor's record drawing set shall be turned over to the Engineer.

#### **1.06 RECORD DOCUMENT SUBMITTALS**

- A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Engineer's reference during normal working hours.
- B. Record Drawings: A clean, undamaged set of blue or black line prints of Contract Drawings will be maintained by the Contractor. The Contractor shall mark the set

to show the actual installation where the installation varies from the work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Record Drawings. Give particular attention to concealed elements that work be difficult to measure and record at a later date.

1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the work.
  2. Mark new information that is important to the Owner but was not shown on Contract Drawings or Shop Drawings.
  3. Note related Change Order numbers where applicable.
  4. Organize Record Drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set. Upon completion of the work, submit Record Drawings to the Engineer for the Owner's records.
- C. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Engineer for the Owner's records.

#### **1.07 GUARANTEES, CERTIFICATES, OPERATION AND MAINTENANCE MANUALS**

- A. During the course of the work and within 6 weeks after approval of Shop Drawings, Contractor shall collect and assemble six (6) copies each of the guarantees, manufacturers' specification sheets and/or working drawings, operation and maintenance instructions, parts list including exploded views, recommended safety procedures, and recommended list of spare parts. The Contractor shall submit all copies, with an itemized listing, to the Engineer.
- B. Operation and Maintenance Manuals shall include all mechanical and electrical equipment specified.
- C. Operation and Maintenance Manuals shall include all electronically operated features.
- D. The Operation and Maintenance Manuals shall be assigned a value of 10% of the equipment cost, and this assigned amount will be retained from progress payments until the manuals are submitted to and approved by the Engineer and the equipment is delivered to the site.
- E. Furnish Operation and Maintenance Manuals on 8-1/2" x 11" sheets or booklets, loose bound in 3-ring binders with front and back page lifters, with binder contents indicated on the front and spine of the binder cover. All loose sheets shall be in vinyl page protectors with reinforced binding edge. Furnish drawings included in the manuals on 11" x 17" sheets laminated and folded to 8-1/2" x 11" or folded

and placed in vinyl “envelope pockets” incorporated into the binder. All materials in manuals shall be original print quality manufacturer’s literature. Photostatic copies of printed materials are not acceptable. Provide an index of the contents of each manual or a master index for a system consisting of several manuals. Provide printed and laminated, reinforced index tabs for each manual. Indexed sections to include Installation, Start-up, Operation, Troubleshooting, Maintenance, Parts List, Recommended Spare Parts and Miscellaneous Components. Submit no less than six (6) copies.

- F. Include a detailed description of function of each principal component, procedures for starting, operation, overhaul and maintenance. Include safety precautions, test procedures and a catalog cross-reference to commercially available parts.
- G. Submit a Preventive Maintenance and Lubrication Schedule for the equipment furnished which specifically explains the duties to be fulfilled by the Owner during the guarantee period. List the manufacturer’s recommended lubricant plus two equal substitutes for all equipment. Shall be included in the O&M Manuals.

#### **1.08 RELEASE OF LIENS**

- A. The Contractor shall deliver to the Engineer a blanket release of liens covering all work performed under this Contract, including that of subcontractors, sub-subcontractors, vendors, and other suppliers of materials and labor. Execute the release of liens on documents similar to AIA Document G706, “Contractor’s Affidavit of Payment of Debtors and Claims”, and AIA Document G706A., “Contractor’s Affidavit of Release of Liens”.
- B. The forms shall be executed by the authorized officer and notarized. All required attachments shall be included as noted on AIA Document G706. If exceptions are listed in either AIA Document G706 or Document G706A, the Contractor shall furnish bond satisfactory to the Owner for each exception.

#### **1.09 PROJECT CLOSEOUT SUBMITTALS**

- A. Submit two copies of Project Closeout submittals bound in three-ring binders, clearly labeled to the type of submittal. Provide pocket folders for folded information.
- B. Submittals shall be submitted within ten days of Substantial Completion and prior to final Application for Payment.
  - 1. Exception: Operation and Maintenance Manuals shall be submitted within six weeks after approval of shop drawings or within ten days of Substantial Completion, whichever is earlier.
- C. Warranties and Bonds
  - 1. Obtain warranties and bonds, executed in duplicate by responsible subcontractors, suppliers, and manufacturers.
  - 2. Except for items put into use the Owner’s permission, leave date of

beginning of time of warranty until the date of Substantial Completion is determined.

3. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual; identify the number and title of the Specification Section in which product is specified.
4. Separate each warranty or bond with index tab sheets keyed to Table of Contents. List subcontractor, supplier, and manufacturer, with name, address and telephone number of responsible principal.

## **PART 2 - PRODUCTS**

### **2.01 CLEANING MATERIALS**

- A. Use only those materials which will not create hazards to health or property, and which will not damage finishes and surfaces.
- B. Use only materials and methods recommended by manufacturer of material being cleaned.

## **PART 3 - EXECUTION**

### **3.01 CLOSEOUT PROCEDURES**

- A. Operating and Maintenance Instructions: Each installer of equipment that requires regular maintenance shall arrange to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a detailed review of the following items.
  1. Operation and maintenance manuals
  2. Record documents
  3. Spare parts and materials
  4. Tools
  5. Lubricants
  6. Fuels
  7. Identification systems
  8. Control sequences
  9. Hazards



10. Cleaning
  11. Warranties and bonds
  12. Maintenance agreements and similar continuing commitments.
- B. As part of instruction for operating equipment, demonstrate the following procedures:
1. Start-up
  2. Shutdown
  3. Emergency operations
  4. Noise and vibration adjustments
  5. Safety procedures
  6. Economy and efficiency adjustments
  7. Effective energy utilization
- C. Training by factory representatives shall be video taped by the Contractor in a VHS format, and the tapes then turned over to the Engineer upon completion of training.

### **3.02 INITIAL OPERATION**

The Contractor shall place the completed Project, equipment and systems into initial operation. The schedule and sequence of the initial operation procedures shall be included in the Project Schedule. Coordinate the initial operation procedures with the Owner's operating personnel.

### **3.03 FINAL CLEANING**

- A. All final cleaning shall be performed by the Contractor, unless otherwise specified.
- B. Remove temporary protection and labels not required to remain.
- C. Clean surfaces free of grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces, bringing them to a state or readiness for Owner occupancy.
- D. Clean transparent glossy materials to a polished condition; remove foreign substances. Polish reflective surfaces to a clear shine.
- E. Clean surfaces of equipment; remove excess lubrication.
- F. Electrical Devices:

1. Clean the faces of all electrical devices and cover plates for same, including power receptacles, switches, computer outlets, computer and TV outlets, TV outlets, telephones, communication speakers, fire alarm speakers, fire alarm pull stations, fire alarm flashing lights, smoke detectors, clocks, speaker volume control switches, security system motion detectors, and fire alarm horns.
  2. Clean the fronts of all electrical panelboards and the main distribution switchboard.
- G. Remove waste, foreign matter and debris from areaways and drainage systems.
- H. Remove waste, debris, and surplus materials from site. Clean grounds; remove stains, spills, and foreign substances from paved areas and sweep. Rake clean other exterior surfaces.

### **3.04 TERMINAL INSPECTION**

- A. Two months prior to expiration of the one year guarantee period, the Contractor shall make an inspection of the work in the company of the Engineer and the Owner. The Engineer and the Owner shall be given no less than five days' notice prior to the anticipated date of terminal inspection.
- B. Where any portion of the work has proven to be defective and requires replacement, repair or adjustment, the Contractor shall immediately provide materials and labor necessary to remedy such defective work and shall execute such work without delay until completed to the satisfaction of the Engineer and the Owner, even though the date of completion of the corrective work may extend beyond the expiration date of the guarantee period.
- C. The Contractor shall not be responsible for correction of work which has been damaged because of neglect or abuse by the Owner nor the replacement of parts necessitated by normal wear in use.

**END OF SECTION 01700**