

# DIVISION 01 – GENERAL REQUIREMENTS

## SECTION 01010

### SUMMARY OF WORK

#### 1.01 DESCRIPTION OF WORK

A. The site of the Denton Production Well No. 6 is located at the end of Old Camp Road in Denton, Maryland.

B. Directions to the site are as follows: From North Sixth Street and Camp Road proceed east approximately 0.7 miles to Camp Road and Old Camp Road. Turn right on Old Camp Road and proceed approximately 0.1 mile to the end of Old Camp Road.

C. The work under this Contract consists of installation of a 12" production well and pre-cast concrete water treatment building. The work generally includes:

1. Furnishing, Installing and Testing of 12" dia. production well.
2. Furnishing and Installing approximately 28 feet of 6" dia. ductile iron water main.
3. Furnishing and Installing approximately 38 feet of 8" dia. ductile iron water main.
4. Furnishing and Installing approximately 30 feet of 1" polyethylene water service.
5. Furnishing and Installing a 22' x 12' Pre-Cast Concrete Water Treatment Building.
6. Furnishing and Installing water treatment equipment.
7. Furnishing and Installing an 8" diameter altitude valve.
8. Furnishing and Installing Electrical work including SCADA control.

D. The work under this Contract includes all requirements to provide a fully finished and operable production well and water treatment building including miscellaneous items and incidentals as indicated, shown, specified in strict conformity with the Contract Documents. The Contractor shall provide all labor, equipment, tools, appliances, materials and incidentals, and shall perform all operations required to completely finish all of the work to the satisfaction of the Owner and the Engineer. The Contractor shall be obligated to furnish a complete and functioning facility.

E. The Contractor's attention is directed to the fact that water service to the Town of Denton must be maintained throughout the construction. At no time can water service be cut off without the prior written approval of the Town of Denton. Any interruption to service must be kept to the shortest duration possible and with the approval of the Town.

## **1.02 TIME OF COMPLETION OF CONTRACT AND LIQUIDATED DAMAGES**

A. The Bid Form states the number of consecutive calendar days allowed from date of "Notice To Proceed" to date of completion of work under this contract. Because of the urgent requirement for completion, this date must be met. For each and every day that the Contractor is in default in completing the Contract as defined in the General Conditions and in the Bid, he shall pay to the Owner liquidated damages as outlined in the Bid Form and/or Agreement.

## **1.03 CONTRACT DOCUMENTS**

- A. All work shall be completed in accordance with the Contract Documents.
- B. The Contract Drawings and Specifications are complementary. However, should a dispute arise as to which shall govern, the Contract Specifications will apply.
- C. Any discrepancy between the "General Conditions" and the "Technical Specifications," the Technical Specifications shall govern.

## **1.04 WORK PERIOD**

- A. The Contractor will be allowed to work 40 hours per week Monday through Friday, 52 weeks per year.
- B. The Contractor shall not work on Saturday, Sunday, or any Holidays unless prior approval is secured from the Owner. If the Contractor desires to work longer than eight (8) hours per day or if he desires to work on weekends, he must first obtain the written permission of the Owner.
- C. Contractor shall pay the Owner for cost of full-time inspection beyond 8 hours per day or 40 hours per week.

## **1.05 FIELD CONTROL OF THE WORK/SURVEYS**

- A. The Contractor shall engage an independent licensed surveyor qualified in the various types of survey work specified herein. The surveying firm shall have a trained staff large enough to perform the specified duties. Within fifteen (15) days after the award of the Contract, the Contractor shall submit the name of his licensed surveyor including his qualifications. The surveyor's duties shall be as outlined herein:
1. Survey, set, and maintain guide stakes required for earth movement and levels. The Contract Drawings indicate a bench mark. The Contractor shall use this bench mark in the execution of the work.
  2. Establish the locations and level of all structures. Establish the limit of disturbed area.

3. Check grades, contours and levels throughout earth movement operation, making allowances for required depressions under paving and sodded areas.
4. Establish lines and grades for underground lines. Make interim checks as required to adhere to the Contract Drawings.
5. Provide a certification in writing to the Engineer as to the correctness of the grades, existing building elevations where sewer lines enter paving and utility locations. Indicate in the certification deviations (if any) from the Contract Drawings.
6. Provide As-Built Drawings of all water, sewer, and process lines outside the buildings. Show locations and invert elevations.
7. Inform the Engineer immediately if, during the survey, deviations from the Contract Drawings are uncovered.

**\* END OF SECTION \***

# DIVISION 01 – GENERAL REQUIREMENTS

## SECTION 01025

### MEASUREMENT AND PAYMENT

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

A. Payment for materials furnished and work done under this contract will be made as hereinafter stipulated, for the actual amount of materials supplied and work done under authorization of the Engineer and in accordance with the unit prices bid in the proposal form; and the Contractor shall not be entitled to receive additional compensation for anything furnished or done, except for such extra work as shall be required by written order.

B. It is intended that all work shown on the Contract Drawings and included in the specifications is to be paid for under the items listed in the proposal form. The absence from the proposal form of bid items for any specific category of work shall be interpreted as meaning that the cost of such work, accomplished as defined by the Contract Documents, shall be included in the prices bid for related items listed in the proposal form.

C. Alternate Bid items may or may not be a part of any contract issued. The Owner may substitute Alternate Bid items on an evaluation of the bids received. These items may be included or deleted in their entirety or any part thereof, without penalty.

D. All items in the Bid which are designated as "Contingent Bid Items" are to be used and will be paid for only at the written direction and authorization of the Engineer, if agreed to by the Owner. Payment under this section will be made for materials furnished and placed in addition to those shown or beyond the limits indicated or reasonably inferred from the Contract Documents. All materials furnished and installed shall be in accordance with these specifications. Measurements and payment will be in accordance with the proposal and will include but not necessarily be limited to the furnishing, hauling, placing, and installing of materials, and the furnishing of such manpower and equipment as required to accomplish the work as directed in writing by the Engineer.

E. All excavation under this Contract is unclassified; that is, the unit prices bid shall be taken to include and cover all materials required to be excavated and backfilled, whether wet or dry, and regardless of the character of the materials. The excavations, removal and replacement of road surfacing materials, curb, sidewalk, gutter and yard

restoration, as required, shall be included in the unit prices bid with any exceptions as noted herein or as designated on the plans.

F. The cost of dewatering and associated work will not be separately paid for, but shall be considered as incidental to other bid items and included in the prices bid for them.

G. All items of work shall be measured concurrently, upon installation and before covering or backfilling, by the Resident Project Representative (RPR) and the Contractor's representative. All items so measured will be recorded by both parties in a format which can be kept current until completion of work. All measurements, to the maximum extent possible, shall be referenced to base dimensions and stationing shown on the Drawings.

H. All removal, relocation and disposal work as indicated in the Contract Documents, and/or as necessary to complete the proposed work shall be performed at no additional cost to the Owner. Cost of all removal, relocation and disposal work shall be included in the price bid.

I. All mobilization costs including the bonding costs, project signs, staging areas and mobilization of equipment on site as indicated in the Contract Drawings, and/or as necessary to complete the proposed work shall be performed at no additional cost to the Owner. Cost of all mobilization shall be included in the price bid.

## **1.02 BASE BID ITEMS**

### **A. Item A1 – Mobilization**

1. The price bid shall cover and include the bonding costs, staging areas, and mobilization of equipment on site as indicated in the Contract Documents, and/or as necessary to complete the proposed work.
2. Payment for mobilization will be at the lump sum price bid. The lump sum price bid shall be limited to ten (10) percent of the total.

### **B. Item A2 - Furnish, Install and Testing of Production Well**

1. The price bid shall include and cover the furnishing of all material, tools and appliances for construction of the production well, well testing and analysis, disinfection, production well pump and motor, well screen, gravel pack, electrical feeds, and necessary site clearing and yard piping. The price shall also include the installation of sampling port, pressure gauge, safety cable, submersible pressure transducer, protective well enclosure, pitless adapter, stainless steel centralizers, check valves, casing, air vent pipe and all work related to site work, excavation and refill, grading,

seeding and all appurtenant items necessary for a complete production well as detailed in the Contract Documents.

B. Item A3 – Develop Production Well

1. The price bid shall include and cover all necessary pumps, compressors, plungers, jetting tools or other necessary equipment to develop the production well, per the specifications and the disposal of water used in the development process.
2. Measurement for this item will be the actual number of hours spent developing the production well as authorized by the Engineer. The hourly rate shall include all labor, supervision and equipment.
3. Payment for the work completed under this item shall be made at the unit price bid per hour for "Develop Production Well", which unit price payment shall constitute full compensation for all labor, supervision, material, equipment, tools and incidentals as authorized by the Engineer.

C. Items A4 and A5: Furnish and Install D.I. Water Main

1. The price bid shall include and cover all costs of furnishing, delivering and installing water main complete, including, but not limited to, the following: test pitting, clearing, grubbing, stripping and stockpiling topsoil, removal and excavation of all materials encountered in trench excavation, hauling wet for drying or excess excavated material to use as trench refill materials, backfilling of trenches with material from the excavation, compaction and top grading of backfilled material, furnishing and placing water main, fittings, concrete buttresses, anchors, retainers, adapters, sleeves and detection tape, disconnection and capping and plugging ends of existing water main, placing and removal of sheeting and bracing, dewatering and disposal of water, maintenance of traffic, locating, supporting, protecting all utilities or structures or their restoration in case of injury or damage and adjustment of valve boxes, etc., repair and adjustment of existing sewer laterals encountered or damages from water main installation, excavation, cutting, plugging, buttressing and abandonment/removal of all existing mains as noted on the plans, pipe testing, distribution system disinfection, top soiling, fertilizing and seeding disturbed grass areas, disposal of excavated material not suitable for refill or in excess of the quantities required for refill, cutting and removal of paving, temporary paving, removal of temporary paving, placing graded aggregated base courses in trench, pavement road restoration as detailed in the contract drawings, cutting and removal and replacement of sidewalks, driveways, and curb and gutters, restoring unpaved surfaces to original condition, all else necessary and incidental to the complete and acceptable installation.
2. Measurement of water mains will be made horizontally along the axis of trench as laid with no deductions made for lengths of valves and fittings,

or the various types of original pavement surfaces encountered. Measurement to be taken from pitless adapter connection to existing water main connection as detailed on the drawings.

3. Payment for all work in connection with furnishing and laying water mains will be made at the appropriate unit prices bid for the lengths of the size actually laid.

D. Items A6: Furnish and Install M.J. Gate Valves

1. The price bid for valves shall include furnishing and placing valves and valve boxes, pipe stubs, caps, plugs, furnishing socket wrenches and all other work and materials requirement for completion of this item.
2. Excavation and backfill for lengths of valves will be measured and paid for as a part of measurement and payment for water main.
3. Payment for furnishing and placing gate valves and valve boxes will be made at the appropriate unit price bid for each valve and valve box of the several sizes actually furnished and placed.

E. Item A7: Furnish and Install D.I. Tapping Tee

1. The price bid for an 8" tapping tee shall include furnishing and placing tee and all other work and materials required for completion of this item.
2. Excavation and backfill for lengths of tapping tee will be measured and paid for as a part of measurement and payment for water main.
3. Payment for furnishing and placing 8" tapping tee will be made at the appropriate unit price bid for the 8" tee actually furnished and placed.

F. Item A8: Furnish and Install D.I. Tee

1. The price bid for a 6" tee shall include furnishing and placing tee and all other work and materials required for completion of this item.
2. Excavation and backfill for lengths of tapping tee will be measured and paid for as a part of measurement and payment for water main.
3. Payment for furnishing and placing 6" tee will be made at the appropriate unit price bid for the 6" tee actually furnished and placed.

G. Item A9: Furnish and Install 8" x 6" Reducer

1. The price bid for a 8" x 6" reducer shall include furnishing and placing tee and all other work and materials required for completion of this item.
2. Excavation and backfill for the reducer will be measured and paid for as a part of measurement and payment for water main.
3. Payment for furnishing and placing the 8" x 6" reducer will be made at the appropriate unit price bid for the reducer actually furnished and placed.

H. Item A10: Furnish and Install 1" dia. Polyethylene SDR9 Water Service

1. The unit price bid shall include and cover all materials, tools and equipment necessary to install new water service line from the existing main to the water treatment building. The work shall include all surface demolition, excavation, moleing, dewatering, sheeting, shoring, backfill, compaction, surface restoration, testing, disinfection, provision and installation of service line corporation stop, valve and valve box where

required, provision and installation of meter and meter pit, tapping of the main, and connection to new meter pit.

2. Payment for all work associated with the furnishing and installation of the water service shall be made at the appropriate unit price bid for each complete and operable water service installed.

I. Item A11: Furnish and Install Precast Concrete Water Treatment Building

1. The price bid for furnishing and installing the precast water treatment building and appurtenances shall include all work related to construction of the building complete, including excavation and backfill, subbase, foundation, steps, surface restoration and all other work necessary for a fully usable structure.
2. Payment will be made for furnishing and installing the water treatment building at the appropriate unit price bid.

J. Item A12: Furnish and Install Check Valve in the Water Treatment Building

1. The price bid for the check valve shall include furnishing and placing check valve and all other work and material required for completion of this item.
2. Payment for furnishing and placing check valve will be made at the appropriate unit price bid.

K. Item A13: Furnish and Install Air/Vacuum Valve in the Water Treatment Building

1. The price bid for the air/vacuum valve shall include furnishing and placing air/vacuum valve and all other work and material required for completion of this item.
2. Payment for furnishing and placing air/vacuum valve will be made at the appropriate unit price bid.

L. Item A14: Furnish and Install Chemical Metering Pump in the Water Treatment Building

1. The price bid for the chemical metering pump shall include furnishing and placing pump and tubing and all other work and material required for completion of this item.
2. Payment for furnishing and chemical metering pump will be made at the appropriate unit price bid.

M. Item A15: Furnish and Install Flowmeter in the Water Treatment Building

1. The price bid shall include and cover all cost of furnishing, delivering and installing 6" flow meter in the flowmeter vault complete, including, but not

limited to, the following: installation, electrical hookup, interfacing with new equipment, testing, flow meter certification and all other work necessary for a fully usable and operational flow meter.

2. Payment will be made for furnishing and installing 6" flowmeter in flowmeter vault and appurtenances complete under the appropriate unit price bid.
3. Price shall also include installation of cast couplings on either side on either side of flowmeter vault.

N. Items A16 and A17: Furnish and Install D.I. 90 degree bends

1. The price bid for 90 degree bends shall include furnishing and placing bend and all other work and materials required for completion of this item.
2. Excavation and backfill for bend will be measured and paid for as a part of measurement and payment for water main.
3. Payment for furnishing and placing bends will be made at the appropriate unit price bid for the bends actually furnished and placed.

O. Item A18: Furnish and Install Dresser Couplings

1. The price bid for the Dresser couplings shall include furnishing and placing Dresser couplings and all other work and material required for completion of this item.
2. Excavation and backfill for Dresser couplings will be measured and paid for as a part of measurement and payment for flowmeter vault.
3. Payment for furnishing and placing Dresser couplings will be made at the appropriate unit price bid.

P. Item A19: Furnish and Place Graded Aggregate Base Course

1. The price bid shall include and cover all materials, labor, tools and equipment necessary to furnish and install the graded aggregate base course to the lines and grades indicated, including all necessary grading, compaction, subbase preparation, complete and in place.
2. Payment for all work under this item shall be made at the unit price bid for each cubic yard of graded aggregate base installed to the lines and grades indicated.
3. Excess graded aggregate placed to a greater depth, or beyond indicated limits, shall be at the expense of the Contractor, and no payment shall be due from the Owner.

Q. Item A20: Furnish and Place Base and Top Course Asphalt

1. The prices bid shall cover and include all materials, labor, tools and appliances for furnishing and placing bituminous concrete base and

surface courses complete in place in roadway and for driveway restoration, including tack coat where required.

2. Payment for all work under these items will be made at the appropriate unit price bid for the area actually furnished and placed.

R. Item A21: Furnish and Place Miscellaneous 4,000 psi Concrete

1. Measurement for this item will be the actual volume of concrete in cubic yards placed. Concrete in this item includes concrete pipe buttresses and concrete apron specifically called out in the contract drawings.
2. Payment for the work completed under this item will be made at the unit price per cubic yard which unit price payment shall constitute full compensation for all labor, materials, equipment, tools, and incidentals required to provide all concrete complete as shown in contract drawings.

S. Item A22: Electrical

1. The price bid shall include all electrical work, conduit, wiring, power service and distribution, electrical manholes, renovations to the existing valve vault along with associated top soiling, fertilizing and seeding disturbed grass areas, disposal of excavated material not suitable for refill or in excess of the quantities required for refill, cutting and removal of paving, temporary paving, removal of temporary paving, placing graded aggregated base courses in trench, cutting and removal and replacement of sidewalks, driveways, and curb and gutters, restoring unpaved surfaces to original condition, and all else necessary and incidental to the complete an acceptable installation. The price shall include installation of electrical service to the water treatment building and station control panel at the new well site and as detailed on the Contract Drawings. The price shall also include furnishing and installing a 100KW, 125 KVA diesel powered emergency generator, transfer switch and SCADA controls with all appurtenances necessary for proper operation as shown on the contract drawings.
2. Payment shall be made at the lump sum price bid in the proposal.

T. Item A23: Electrical Service

1. The price bid shall include allowance for the Electric Utility Company to furnish and install all materials, labor, tools and equipment necessary to upgrade the electrical service required per Contract drawings and Specifications. Payment for this item will be made at the lump sum price noted in the bid.

U. Item A23: Altitude Valve

1. The price bid for the altitude valve shall include removal of the old valve and furnishing and installing a new 8" diameter altitude valve and all other work and material required for completion of this item.
2. Payment for furnishing and placing altitude valve will be made at the appropriate unit price bid.

### **1.03 STIPULATED CONTINGENT BID ITEMS**

#### **A. Item B1: Miscellaneous Excavation and Backfill**

1. The price bid for miscellaneous excavation and backfill shall include and cover excavation and backfill, dewatering, removal and restoration of pavement, curb and gutter, sidewalk, and all other incidental work. Test pitting not specifically called for on the Contract Documents will be paid for under "Miscellaneous Excavation and Backfill". Where the Engineer directs the Contractor to relocate a trench because of an unforeseen obstruction in the trench or to test pit a utility, the Contractor will be paid for the excavation and backfill under this bid item.
2. Measurement for quantities of miscellaneous excavation and backfill will be based upon the authorized depth, width and length of the excavation and backfill as directed by the engineer. This bid item is not to be used for additional widths as may be associated with any trench wall failure or additional excavations for the Contractor's convenience.
3. Payment for all work in connection with miscellaneous excavation and backfill will be made at the appropriate unit price bid for the volume actually excavated and refilled within the limits defined here in before and as directed by the Engineer.

#### **B. Item B2: Excavation Below Subgrade**

1. The price bid for excavation below subgrade shall include and cover excavation below subgrade and disposal of material so excavated. Also included are additional placement and removal of sheeting, dewatering, and all other incidental work necessitated by excavation below subgrade.
2. Measurement for this item will be made on the actual number of cubic yards of material removed from below subgrade as directed by the Engineer. In the case of a structure, width and depth of the excavation will be measured by the Engineer. In the case of a pipeline, quantities will be based upon the authorized depth of excavation below the underside of the pipe barrel and the authorized trench width.
3. Payment for all work in connection with "EXCAVATION BELOW SUBGRADE" will be made at the appropriate unit price bid for the volume actually removed within the limits defined here in before and as authorized in writing by the Engineer prior to the work being performed.

C. Item B3: Furnish and Place Select Backfill

1. The price bid for furnishing and placing select backfill shall include and cover furnishing, placing and compacting select backfill and other incidental work not specifically detailed on the Contract Drawings or Specifications. Only additional select backfill as ordered by the Engineer will be paid for under this item.
2. Measurement for quantities of select backfill will be placed upon the authorized depth and width of placement.
3. Payment for all work in connection with select backfill will be made at the appropriate unit price bid for the volume actually furnished and placed within the limits defined here in before and as authorized in writing by the Engineer prior to the work being performed.

D. Item B4: Furnish and Place Stone Bedding

1. The price bid for furnishing and placing additional stone bedding shall include and cover furnishing, placing and compacting and shaping stone in excavations and all other incidental work not specifically detailed on the Contract Drawings or Specifications. Only additional stone bedding ordered by the Engineer will be paid for under this item.
2. Measurement for quantities of additional stone bedding will be based upon the authorized depth and width of placement, as directed by the Engineer.
3. The Contractor shall not be paid for stone bedding used for dewatering in addition to bedding requirements shown on plans.
4. Stone bedding specifically called out for on the plans and specifications under pipelines and structures will not be paid for under "Furnish and Place Stone Bedding", but will be incidental to other bid items.
5. Payment for all work in connection with additional stone bedding will be made at the appropriate unit price bid for the volume actually furnished and placed within the limits defined herein before and as authorized by the Engineer in writing prior to the work being performed.

E. Item B5: Furnish And Place Miscellaneous 4,000 psi Concrete

1. The price bid shall include and cover furnishing and placing miscellaneous 4,000 psi concrete, including forming, finishing, and all other incidental work, for cradle or other construction not included as part of other pay items.
2. Measurement of quantities for miscellaneous concrete will be made based upon authorized depth, width, and length of concrete placement.
3. No Sackrete, or similar product, shall be allowed in miscellaneous concrete.
4. Payment for all work in connection with miscellaneous concrete will be made at the appropriate unit prices bid for the volume of concrete actually

furnished and placed within the limits defined here in before and as authorized by the Engineer.

**\* END OF SECTION \***

## **DIVISION 01 – GENERAL REQUIREMENTS**

### **SECTION 01071**

#### **DEFINITIONS, SPECIFICATION REFERENCE**

##### **PART 1 - GENERAL**

##### **1.01 DEFINITIONS**

A. Where “as shown”, “as indicated”, “as detailed”, or words of similar import are used, it is understood that reference to the drawings accompanying this specification is made unless stated otherwise.

B. Where “as directed”, “as required”, “as selected”, “permitted”, “acceptance”, or words of similar import are used, it is understood that direction, requirement, selection, permission or acceptance by the Engineer and compliance with codes and regulations are intended unless stated otherwise.

C. Where used, “provide” is understood to mean “provide complete in place”; that is, “furnished and installed.”

D. Where “items of material, equipment, work, etc.” and “methods of installation, finish, and accomplishment, etc.” are referred to in this specification it is understood to refer to all such “items, materials, equipment, work, finish, etc.”

E. Where “includes” is used, it is understood to mean “includes, but is not limited to.”

F. Where “equal to”, “or equal”, or “approved equal”, are used, the Contractor may substitute a product or material, which in the judgment of the Engineer, expressed in writing, is equal to that specified.

##### **1.02 SPECIFICATION REFERENCE**

A. Materials or operations specified by reference to specification of a manufacturer or society or institute or other standard must comply with requirements of current specification or standard listed.

B. In case of conflict between referenced specification or standard, the one having the more stringent requirement governs.

C. All references to the Maryland State Highway Administration Standard

Specifications shall mean the latest edition thereof, unless otherwise noted.

**PART 2 - PRODUCTS**

Not Required

**PART 3 - EXECUTION**

Not Required

**\* END OF SECTION \***

# **DIVISION 01 – GENERAL REQUIREMENTS**

## **SECTION 01100**

### **SPECIAL PROVISIONS**

#### **PART 1 - GENERAL**

##### **1.01 DESCRIPTION**

A. The following Special Provisions shall take precedence over the plans and other Sections of these specifications.

##### **1.02 TIME FOR COMPLETION AND LIQUIDATED DAMAGES**

A. The proposal states the number of consecutive calendar days allowed from date of "Notice to Proceed" to date of completion of the work under this contract.

B. For each and every day that the Contractor is in default in completing the contract, as defined in the General Conditions, he shall pay to the Owner in liquidated damages as outlined on Page 00300-1.

##### **1.03 CONSTRUCTION SCHEDULE**

A. The Contractor shall prepare a construction schedule in bar chart form. The schedule shall be submitted by the Contractor at the pre-construction conference.

##### **1.04 PROJECT SIGNS**

A. One (1) sign shall be provided by the contractor and be erected at a location directed by the Owner. The project sign should be not less than 4 foot by 8 foot. Owner to provide sign format.

##### **1.05 PROGRESS PHOTOGRAPHS**

A. Each month that work is in progress, the Contractor shall have taken, by a professional photographer, four color 8 inch by 10 inch photographs, representing four different views of the work. Two prints of each photograph shall be clearly labeled as to project title and date taken and delivered by the Contractor to the Engineer.

## **1.06 TEMPORARY FACILITIES**

A. The Contractor shall provide and maintain approved sanitary facilities for the full term of the contract.

## **1.07 UTILITIES**

A. The Contractor shall contact "Miss Utility" at 1-800-257-7777 and the Town of Denton Department of Public Works at least 48 hours prior to digging in the vicinity of existing underground utilities to have them located and marked.

## **1.08 SAFETY**

A. The Contractor shall comply, within the prices bid and without extra cost to the Owner, with all safety regulations or determinations issued by any agency of the Federal Government, including OSHA and the State of Maryland.

## **1.09 ACCESS BY RESIDENTS**

A. The Contractor shall so schedule his work as to minimize the time period during which vehicular access to each dwelling along the route is prevented.

B. The Contractor shall provide vehicular access at all time to commercial establishments.

C. The Contractor shall provide, at all times, safe pedestrian access to all dwellings, whether residential, commercial or other.

## **1.10 CONSTRUCTION STAKE OUT**

A. The Contractor shall, within the prices bid and without extra cost to the Owner, perform stakeout of lines and grade required to properly construct the items shown on the plans and specified herein.

B. The Contractor shall furnish the Engineer, at least five working days prior to the start of construction, two (2) record copies of line and grade stake out data for approval. The furnishing of such record data, despite any action or lack thereof on the part of the Engineer relative to the data furnished, shall in no way release the Contractor from his responsibility for the completeness and accuracy of stake-out work necessary for construction.

C. All survey and stake-out work shall be done by qualified personnel subject to the approval of the Owner.

D. Any bench marks destroyed through or as a direct result of the Contractor's construction operations shall be replaced and/or restored at his expense with no additional cost to the Owner.

#### **1.11 REPAIR OF DAMAGED AREAS**

A. Repair of areas disturbed during construction shall be as specified. The cost of seeding, mulching and other materials shall be included in the appropriate prices bid. All disturbed or damaged areas shall be restored in kind to equal or better condition within the prices bid and at no additional cost to the Owner.

#### **1.12 SEQUENCE OF CONSTRUCTION**

A. The Contractor shall coordinate construction activities with the Town of Denton.

#### **1.13 COORDINATION WITH DEPARTMENT OF PUBLIC WORKS PERSONNEL**

A. The Contractor shall fully cooperate and coordinate his activities with Department of Public Works personnel at all times. The Contractor shall notify the Department of Public Works at least 72 hours in advance of any planned shut down of any water line.

#### **1.14 EROSION AND SEDIMENT CONTROL MEASURES**

A. All sediment and erosion control measures shall be accomplished in complete accordance with the Contract Drawings and Specifications, Section 02540.

#### **1.15 DISPOSAL OF EXCESS MATERIALS**

A. The Contractor shall be responsible for obtaining an acceptable site for all excess materials and debris not suitable for incorporation in the finished work.

#### **1.16 TEST PITTING**

A. The Contractor shall dig test pits and verify the elevations of all existing underground utilities which cross the new waterline and are in close vertical proximity thereto and which, if there is an elevational difference from that shown, would require the depth of water line and/or the existing utility to be changed.

B. Test pitting specifically called for on the Contract Drawings shall be incidental to the cost for "Furnish and Install DI Water Main" and therefore shall not be paid under Miscellaneous Excavation and Backfill.

C. Test pitting shall be done preferably before any work is started, but as a minimum at least 2 weeks in advance of new construction. The Contractor shall report

his findings to the Engineer. Any work required by failure to dig test pits shall be performed at no cost to the Owner, to be included in prices bid.

D. Payment for additional test pitting requested by the Engineer, which is not addressed in these specifications, or on the drawings, will be made under the bid item for Miscellaneous Excavation and Backfill.

E. The Contractor shall test pit at all crossings of proposed water mains with gas mains and services to determine conflicts. The Contractor shall notify the Owner/Engineer in a timely manner of any conflicts so the utility company can be notified and corrective action can be taken. The Contractor shall have no claim for extra compensation resulting from downtime or other work associated with conflicts with existing gas mains and services. Test pitting at gas mains and services shall be included in unit prices bid for "Furnish and Install DI Water Main."

### **1.17 TRENCH CONDITIONS**

A. All trenches and excavations shall be backfilled or suitably covered and fenced secure at the end of each working day.

### **1.18 TEMPORARY ROAD REPAIR**

A. The Contractor shall provide temporary road repair immediately upon backfilling pipeline excavations and maintain same until final paving. See "TEMPORARY ROAD RESTORATION DETAIL" in contract drawings for clarification.

B. Temporary road repair shall consist of bituminous concrete cold-mix or stabilized graded aggregate or crusher run base as directed by Owner or Engineer, to be placed over backfilled trenches and maintained flush with original pavement grade. Cost of providing and maintaining temporary road repair, whether cold patch or aggregate, and dust control shall be the Contractor's responsibility and included in the prices bid.

C. No separate measurement or payment will be made for temporary road repair. Cost shall be included in the prices bid.

### **1.19 CONTRACTOR'S RESPONSIBILITIES**

A. Sufficient time for construction has been indicated and it is intended that all work specified under Contract Documents be performed within the normal daily working hours of 8:00 to 5:00 p.m., Monday through Friday. An alternate continuous daily work period may be satisfactory, however, subject to approval of the Engineer.

B. Should the Contractor extend his work beyond these specified hours, as may have been approved by the engineer and owner, any and all costs of weekend, holiday and/or overtime inspection, including but not limited to direct salaries, fringe benefits, overhead profit, administration and supervision, incurred by the Engineer and/or the

Owner will be the sole obligation of the Contractor. The overtime rates for the Engineers are:

- \$75 per hour for the Town of Denton
- \$75 per hour for RPR
- \$125 per hour for Construction Representative

There shall be no recourse by the Contractor to the Owner for reimbursement of these costs.

C. The Contractor will be allowed to work 40 hours per week, Monday through Friday, 52 weeks per year. The Contractor shall not work on Saturday, Sunday, holidays recognized by the Owner, or beyond 40 hours per week, unless prior approval is secured from the Owner.

## **1.20 PRE-CONSTRUCTION AND PROGRESS MEETINGS**

A. A pre-construction conference will be scheduled by the Engineer. Attendance by Contractor and all subcontractors is mandatory. Representatives from Maryland Department of the Environment (MDE) shall be notified. Progress meetings shall be held during construction monthly, unless directed otherwise by the Owner or Engineer. Progress meetings shall include, Owner, Engineer, Contractor, subcontractors and representatives from funding agencies.

## **1.21 RECORD DOCUMENTS**

A. During the progress of the job, the Contractor shall keep a careful record at the job site of all changes and corrections to the information shown on the Drawings, Specifications, Addenda and Change Orders. The Contractor shall enter such changes and corrections on one set of Contract Documents immediately. The record documents shall indicate, in addition to all changes and corrections, the actual location referenced from two permanently fixed surface structures of all subsurface utilities installed or uncovered by him. At the time of beneficial occupancy of each facility involved under the Contract, the Contractor shall submit to the Engineer one set of record documents as required herein. Final payment, with respect to the Contract as a whole, will be withheld until proper record documents have been furnished to the Engineer.

B. The Contractor shall keep one copy of all Contract Documents and approved shop drawings at the site in good order and annotated to show all changes made during the construction process. These shall be available to the Engineer and shall be delivered to him upon completion of the project.

## **1.22 CHANGE ORDERS**

A. Change Orders requests and proposals initiated by the Contractor are to be sent first to the Engineer, then to the Town of Denton.

### **1.23 BID AWARD**

A. The Bid price used for evaluation and award of the bid will be based on the sum of the Base Bid Total plus Contingent Bid Items. Award will be made to the lowest responsive, responsible bidder.

### **1.24 PAYMENTS TO CONTRACTOR**

A. Fourteen (14) calendar days prior to the monthly progress meeting, the Contractor shall provide a draft copy of the monthly payment request to the resident project representative for initial review.

B. Seven (7) calendar days prior to the monthly progress meeting, the Contractor shall submit to the resident project representative four (4) executed copies of the monthly payment request for final review and approval.

C. The Engineer at the progress meeting will submit three (3) executed copies of the monthly payment request.

### **1.25 MDE PERMIT CONDITIONS**

- A. MDE's permit conditions will be such that the proposed well water supply cannot be used:
- a. Until all required raw water testing is completed and the sampling data is submitted;
  - b. Until any changes and/or additions to the design, based on the raw water data are submitted and approved;
  - c. Until after a certificate of potability for the system is issued by the MDE/Water Supply Program.

**\* END OF SECTION \***

## **DIVISION 01 - GENERAL REQUIREMENTS**

### **SECTION 01200**

#### **PROJECT MEETINGS**

##### **1.01 GENERAL**

A. The Engineer will schedule and administer preconstruction and monthly progress meetings for duration of the project. The Engineer will be responsible for preparation of agenda; setting meeting; date; making arrangements for meeting room; presiding over meeting; recording meeting minutes, recording and distribution of meeting minutes to all participants. The Owner, Engineer, Contractor and Subcontractors, Inspector, and other interested parties shall be in attendance. Representatives of Contractor and Subcontractors attending meetings shall be qualified and authorized to act on behalf of the entity each represents.

##### **1.02 PRECONSTRUCTION MEETING**

A. A general information meeting shall be held with the Owner, Engineer, Contractor and Subcontractors, Inspector, and other interested parties in attendance after the award of the Contract and prior to the issuance of the Notice to Proceed. The meeting shall cover the general features of the project and various requirements of the Owner.

##### **1.03 PROGRESS MEETINGS**

A. During the entire duration of the Contract, there will be Progress Meetings held every month at the Project Site. The meetings will be attended by the Owner, Engineer, Inspector, and Contractor, and will be used to discuss the progress of the project and coordination of the Subcontracts. Representative of the Contractor will be required to attend all Progress Meetings.

**\* END OF SECTION \***

# DIVISION 01 - GENERAL REQUIREMENTS

## SECTION 01300

### SUBMITTALS

#### 1.01 SHOW DRAWINGS, PRODUCT DATA AND SAMPLES

A. Shop drawings are generally defined as all fabrication and erection drawings, diagrams, brochures, schedules, bills or material and other data prepared by the Contractor, his subcontractors, suppliers or manufacturers which illustrate the manufacturer, fabrication, construction and installation of the work, or a portion thereof.

B. All costs necessary for compliance with the requirements of this Section of the specifications shall be included under the lump sum price bid.

C. Detailed shop drawings, data, literature for fabricated materials or equipment to be incorporated in the work shall be submitted to the Engineer for review for general compliance with the contract documents before fabrication. The Contractor shall obtain and check manufacturer's shop drawings, certified prints and other pertinent data for conformance with all requirements of the Plans and Specification and in ample time to permit satisfactory progress of the work. After the completion of such checking and verification by the Contractor, the Contractor shall sign or stamp such drawing, which stamp shall state as follows:

Checked by \_\_\_\_\_  
(Contractor's Name)

Signed by \_\_\_\_\_  
(Checker's Name)

D. All data, drawings and correspondence from subcontractors, manufacturers or suppliers shall be routed through the Contractor. The Engineer shall review only such data and details as are transmitted to him by the Contractor. All correspondence from the Contractor to the Engineer shall refer to the appropriate section of these specifications containing the subject matter of the inquiry.

E. All shop drawings shall be in conformity with all requirements of the plans and specifications. All shop drawings except diagrams, brochures, schedules and illustrations shall be to an appropriate scale, no smaller than 1/8 inch = 1 foot 0 inches, and shall give all dimensions necessary for installation and incorporation in the work. All shop drawings shall be accurate and complete, showing outline and section views,

details, materials, accessories, appurtenances and related items. Shop drawings showing piping and conduit systems shall incorporate sufficient views to show all fittings and specialties including locations and spacing of hangers and supports. Piping and/or conduit systems 3-inches in diameter and smaller may be shown as single line. Equipment and specialties installed within and/or connected to piping and conduit systems shall be cross-referenced to equipment and specialty shop drawings by shop drawing identification number, manufacturer name, catalog or model number and equipment numbers shown on the plans. Electrical shop drawings shall include, but are not necessarily limited to, complete terminal identification diagrams and schedule, complete point-to-point interconnection diagram, complete single line and elementary wiring diagrams, for all power, signal, control and lighting systems, together with panel layout drawings. Terminal point and wire identification on all working drawings shall be identical to related terminal point and wire identifications on equipment and panels, and absolutely no deviation from this requirement will be permitted.

F. The Contractor shall submit to the Engineer a minimum of eight (8) copies of shop drawings and approval data plus any additional number required for the Contractor's use. The Engineer will retain four (4) copies of each submittal and return four (4) copies to the Contractor. The Engineer's notation of the action taken will be noted on all of the returned copies. At the time of each submission, the Contractor shall call to the Engineer's attention, in writing, any deviations that the shop drawings may have from the requirements of the Plans and Specifications.

G. Upon review by the Engineer of the above drawings, lists, samples and other data the same shall become a part of the Contract, and the fabrications furnished shall be in conformity with the same, provided that the review of the above drawings, lists, specifications sample or other data shall in no way release the Contractor from his responsibility for the proper fulfillment, by any fabrication, or the requirements of this Contract.

H. Corrections or comments made on the shop drawings during the Engineer's review do not relieve the Contractor from compliance with the requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. The Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, and in performing his work in a safe manner. If the shop drawings deviate from the Contract Documents, the Contractor shall advise the Engineer of the deviations, in writing accompanying the shop drawing, including the reasons for the deviations, and shall request deviation from the Contract Documents.

I. The shop drawings are intended to be utilized by the Contractor for additional fabrication, assembly and erection data. The shop drawings do not change or supersede the Plans and Specifications except in specific cases when the Contractor requests in writing and receives approval in writing for a deviation from the Plans and Specification. The Contractor's request for a change shall give, in detail, the specific

change requested and shall state the reason for the change. Changes requested by the Contractor and approved by the Engineer shall not be construed to include approval of any change except the changed details specifically requested and approved.

J. The Contractor will also submit to the Engineer for review with such promptness as to cause no delay in work, all samples required by the Contract Documents. All samples shall have been checked by and stamped with the approval of the Contractor, identified clearly as to material, manufacturer any pertinent catalog numbers and the use for which intended.

K. The Contractor's attention is specifically directed to the fact that no work shall be fabricated, nor equipment or materials ordered, nor any construction performed, prior to approval by the Engineer of shop drawings applicable thereto. Construction performed in violation of this requirement will be neither approved nor certified for payment until applicable shop drawings have been submitted and approved. If the Engineer so directs, the Contractor shall disassemble and remove any such construction performed prior to approval by the Engineer of shop drawings applicable thereto, and the Contractor will be allowed no additional compensation nor extension of contract time. If any equipment or materials are ordered by the Contractor prior to submission and approval of shop drawings he does so at his own risk.

L. It shall be the responsibility of the Contractor to make all the necessary changes in other items, which result from deviations or changes requested by the Contractor and approved by the Engineer, so that all items perform the requirements and intent of the Contract Documents.

M. After review by the Engineer, shop drawings shall be returned to the Contractor marked as follows: APPROVED, APPROVED AS NOTED, REVISE AND RESUBMIT or REJECTED. Unapproved shop drawings (i.e., REVISE AND RESUBMIT or REJECTED) shall be returned to the Contractor for necessary modifications: only two (2) copies of unapproved shop drawings will be returned. Subsequently, the Contractor shall submit a minimum of eight (8) copies of complete, revised shop drawings to the Engineer for approval.

N. Within fourteen (14) days of the preconstruction conference, the Contractor shall submit a list of all shop drawings to be submitted. This list can then be used as a check to ensure that all items are submitted.

O. Timing of Submittals:

1. Make submittals promptly and in such sequence as to cause no delay in the Work.

2. In scheduling, allow 15 working days for Engineer's review of Mechanical and Electrical shop drawings following receipt of the submittal. Allow 10 working days for Engineer's review of all other shop drawings following receipt of the submittal.

3. Delays caused by tardiness in receipt of submittals shall not be an acceptable basis for extension of the Contract Duration time.

**\* END OF SECTION \***

# DIVISION 1 - GENERAL REQUIREMENTS

## SECTION 01310

### CONSTRUCTION SCHEDULES

#### PART 1 - GENERAL

##### 1.01 GENERAL

- A. Promptly after award of Contract, prepare and submit to the Engineer and Owner estimated construction progress schedules for the work, with sub-schedules of related activities which are essential to its progress.
- B. Submit revised progress schedules monthly as construction progresses.

##### 1.02 FORM OF SCHEDULES

- A. Prepare schedules in form of a horizontal bar chart.
  - 1. Provide separate horizontal bar for each trade or operation.
  - 2. Horizontal time scale: Identify first work day of each week.
  - 3. Scale and spacing: Allow space for notations and future revisions.

##### 1.03 CONTENT OF SCHEDULES

- A. Construction Progress Schedule
  - 1. Show complete sequence of construction by activity.
  - 2. Show dates for beginning, and completion of, each major element of construction.

##### 1.04 PROGRESS REVISIONS

- A. Indicate progress of each activity to date of submission.
- B. Show changes occurring since previous submission of schedule.
  - 1. Major changes in scope.
  - 2. Activities modified since previous submission.
  - 3. Revised projections of progress and completion.
  - 4. Other identifiable changes.

C. Provide a narrative report as needed to define:

1. Problem areas, anticipated delays, and the impact on the schedule.
2. Correction action recommended and its effect.

#### **1.05 SUBMISSIONS**

A. Submit initial schedules within 15 days after award of the Contract.

1. Engineer will review schedules and return review copy within 10 days after receipt.
2. If required, resubmit within 7 days after return of review copy.

B. Submit revised progress schedules with each application for payment.

#### **1.06 DISTRIBUTION**

A. Distribute copies of the reviewed schedules to:

1. Job site file.
2. Subcontractors.
3. Other concerned parties.

B. Instruct recipients to report promptly to Contractor, in writing, any problems anticipated by projections shown in the schedules.

**\*END OF SECTION\***

# **DIVISION 01 - GENERAL REQUIREMENTS**

## **SECTION 01400**

### **QUALITY CONTROL**

#### **1.01 CODES, RULES, PERMITS AND FEES**

##### **A. General:**

1. Local, State, and Federal permits required for this project must be obtained by the Contractor unless they are included herein. Any permits secured by the Owner will be made available to prospective Bidders on request. The Contractor shall comply with the provisions of all such permits, and the cost of all work dictated by such permits shall be included in the prices bid.
2. The Contractor shall give all necessary notices, obtain all permits (except those referenced above) and pay all governmental taxes, fees and other costs in connection with the work, file all necessary plans, prepare all documents and obtain all necessary approvals of all governmental departments having jurisdiction, obtain all required Certificates of Inspection and Approval for the work and deliver same to the Engineer, except as otherwise noted herein.

**B. Compliance:** All materials furnished and all work installed shall comply with the requirements of all governmental departments having jurisdiction.

#### **1.02 STANDARDS**

**A.** Any reference to standards in the Contract Documents shall always imply the latest issue in effect including all revisions at the time bids are taken, of said standards unless otherwise stated.

#### **1.03 VERIFICATION OF DIMENSIONS**

**A.** The Contractor shall be responsible for field verification of all dimensions of existing facilities, underground utilities, and other items which are shown on the Contract Drawings.

**\* END OF SECTION \***

## **DIVISION 01 - GENERAL REQUIREMENTS**

### **SECTION 01500**

#### **CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS**

##### **1.01 ELECTRIC POWER**

A. It shall be the obligation and responsibility of the General Contractor to provide and maintain temporary facilities for furnishing light and power necessary for operations under the General Contract and to make all necessary arrangements therefore, including all required connections, ordering the meter, and paying all fees and inspection charges. If power is obtained from the lift station, it will be metered and the Contractor will be charged for the power used.

B. The General Contractor shall make the temporary power facilities available to any and all approved Subcontractors, for their use in connection with their Contracts, and may charge each Subcontractor for such service an amount not to exceed a fraction of the cost of the project. Removal of temporary facilities shall be by the General Contractor. The installation and meters shall remain until need for same by each Subcontractor has ceased or until completion of the General Contract.

##### **1.02 TEMPORARY HEAT AND VENTILATION**

A. It shall be the obligation and responsibility of the General Contractor to provide and maintain temporary heat by means of portable electric, oil or gas-fired units. The General Contractor shall provide and pay for all fuel and electricity used in the temporary facilities and shall provide proper smoke pipes or other means to prevent smoke or smudge from marking up walls, ceilings or other parts of equipment.

B. Should the temporary heating facilities require electric service, the General Contractor shall provide the necessary wiring and power.

C. After their installation and testing, the permanent heating system facilities may be used for temporary heat, it shall be the responsibility of the General Contractor to guarantee the heating system for a period of two years following final acceptance of the General Contract or beneficial occupancy of the General Contract, whichever comes first. It also shall be the responsibility of the General Contractor to replace all filters before the final acceptance of the General Contract.

D. It shall be the responsibility of the General Contractor to repair any damage to heating and ventilating equipment suffered as the result of use by the General Contractor.

### **1.03 WATER SUPPLY**

- A. The Owner will make available potable water during the construction of this facility at no charge. The Contractor will be responsible for any temporary piping and connections required to obtain this water.
- B. The Contractor shall provide an adequate supply of potable water for use in the field office.

### **1.04 SANITARY FACILITIES**

- A. The Contractor shall provide and maintain approved sanitary facilities for the full term of the Contract.

### **1.05 CONSTRUCTION SIGN**

- A. The Contractor shall provide one (1) construction sign to be displayed throughout the duration of construction. Engineer to provide format.
- B. The Contractor shall be responsible for placing and removing the sign on the job site as directed by the Owner.

### **1.06 FIELD CONDITIONS AND MEASUREMENTS**

- A. The Contractor shall base all measurements, both horizontal and vertical from established benchmarks and monuments. The Contractor shall be responsible for field verification of all dimensions and conditions at the job site.
- B. Should the Contractor discover any discrepancy between actual conditions and those indicated, which prevent following good practice or the intent of the Contract Drawings and Specifications, he shall notify the Engineer and shall not proceed with his work until he has received instructions from the Engineer.
- C. No claims shall be made for extra payment or extensions of Contract completion time if the Contractor fails to notify the Engineer of any discrepancy before proceeding with the aspect of the work.

### **1.07 PROTECTION OF PERSONS AND PROPERTY**

- A. The Contractor shall be responsible for initiating, maintaining and providing supervision of safety precautions and programs in connection with the work including, but not limited to, all legally required precautions and programs.
- B. The Contractor shall take all reasonably necessary precautions for safety of, and shall provide all reasonably necessary protection to prevent damage, injury or loss to: (1) employees on the work and other persons who may be affected thereby; (2) the

work, materials and equipment to be incorporated therein; and (3) other property at or adjacent to the site.

C. The Contractor shall give all notice and comply with all applicable laws, ordinances, rules, regulations, and orders of public authorities bearing on the safety of persons and property and their protection from damage, injury or loss arising from Contractor's operations hereunder.

D. The Contractor shall be liable for damage or loss (other than damage or loss to property insured under the property insurance provided or required by the Contract Documents to be provided by the Owner) to property at the site to the extent caused in whole or in part by the Contractor, a Subcontractor of the Contractor or anyone directly or indirectly employed by either of them, or by anyone for whose acts they may be liable, except damage or loss attributable to the acts or omissions of the Owner, the Owner's separate contractors or anyone directly or indirectly employed by them or by anyone for whose acts they may be liable and not attributable to the fault or negligence of the Contractor.

#### **1.08 CONTRACTOR STORAGE AND WORK AREAS**

A. The Contractor will be responsible for providing storage and work areas for use by the Contractor for parking of workmen's vehicles, storage of materials, tools, field offices, equipment and other items necessary for construction. The exact limits of the areas will be designated in the field by the Owner during the Pre-bid Conference. The Contractor shall be fully responsible for the security of these areas, including fencing, watchmen, and other means of security. Under no circumstances will the Owner be responsible for the security of any property belonging to the Contractor, his subcontractors, or any of his work forces.

B. Contractor shall maintain all staging areas including grass cutting.

#### **1.9 DRAINAGE**

A. The Contractor shall keep all existing surface and subsurface drainage and water courses unobstructed, or provide equal courses effectively placed, and prevent accumulations of surface water.

#### **1.10 SOIL EROSION AND SEDIMENT CONTROL**

A. Adequate control of soil erosion and sedimentation of both a temporary and permanent nature on areas disturbed by this work shall be provided at no extra cost to the Owner, subject to the approval of the Engineer.

B. It shall be the Contractor's responsibility to adhere to the approved Sediment and Erosion Control permit issued by the Sussex County Soil Conservation District.

## **1.11 SAFETY**

A. Precaution shall be exercised at all times for the protection of persons (including employees) and property. The safety provisions of applicable laws, building and construction codes shall be observed. Machinery and equipment shall be guarded and all hazards shall be eliminated in accordance with the safety provisions of the Manual of Accident Prevention in Construction published by the Associated General Contractors of America, to the extent that such provisions are not in contravention of applicable law.

B. The Contractor shall comply with the U.S. Department of Labor, Safety and Health Regulations for Construction promulgated under the Occupational Safety and Health Act of 1970 (Public Law 91-596) and under Section 107 of the Contract Work Hours and Safety Standards (Public Law 91-54).

C. Nothing in the Occupational Safety and Health Act of 1970 shall be construed to supersede or in any manner affect any workmen's compensation law or to enlarge or diminish or affect in any manner the common law or statutory rights, duties, or liabilities of employers and employees under any law with respect to injuries, diseases, or death of employees arising out of or in the course of employment.

**\* END OF SECTION \***

# **DIVISION 01 - GENERAL REQUIREMENTS**

## **SECTION 01600**

### **MATERIALS AND EQUIPMENT**

#### **1.01 SPECIFIED EQUIPMENT, MATERIALS AND SUBCONTRACTORS**

A. The Contract Drawings and/or Contract Specifications may specify the names of manufacturers, trade names, model numbers, types of equipment, materials or subcontractors to be used in the project. All bids shall be based on the equipment, materials and subcontractors specified or equal. Reference made to a particular product or model of a manufacturer is made to identify a particular design, quality, construction, arrangement, or style, etc.

B. Where the Contractor proposes to use a substitute product or subcontractor for a named item, he shall submit to the Engineer complete information on and working drawings for such substitution, including all necessary redesign of structures, partitions, foundations, piping, ductwork, wiring, or of any other part of the project. All such redesign and all new drawings and detailing required therefore shall be prepared by the Contractor at the Contractor's expense. Let it be understood that where the substitution of any item or items require a different quantity and arrangement of structure, partitions, foundations, piping, ductwork, wiring, conduit or equipment from that specified or indicated on the Contract Drawings, the Contractor shall include the total cost of such changes in his bid. Later requests for additional money for substitutes will not be considered. It shall be expressly understood that all equipment, materials, supplier, or subcontractors named in the specifications shall be furnished in full accordance with the Contract Drawings and Specifications.

C. The attention on the Contractor is especially directed to the requirement that, if the Contractor proposes to substitute materials or equipment as "equals" to those specified, it shall be the Contractor's responsibility to furnish complete, specific, detailed information from the manufacturer or supplier of the material or equipment he proposes to furnish, in which the requirements of the contract specifications are shown to be met. This shall consist of a point by point comparison of the contract specification requirements with the material or equipment proposed to be furnished. In the event the contract specifications mention a model number and manufacturer, a point by point comparison of the equipment specified under the contract and the proposed substitutes shall be furnished by the Contractor. The burden of responsibility in furnishing this information is with the Contractor. If incomplete or irrelevant data is submitted as evidence of compliance with this section of the specifications, the data will be returned to the Contractor and the request for approval will be denied. Names of manufacturers for equipment on the list specified in Section 01300, when approved, will be considered as final and no changes will be accepted. Names of manufacturers for substitute items

which are not approved by the Engineer will not be considered and the Contractor must supply the products as specified.

## **1.02 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, furnishing such fittings, valves, transitions, pull or junction boxes, and accessories as may be required to meet such conditions, at no additional cost to the City.

## **1.03 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 the equipment as are required to complete the installation.

## **1.04 EQUIPMENT UNIFORMITY**

A. All valves and other multiple-unit equipment, shall be, to the greatest extent possible within its category, the product of a single manufacturer.

## **1.05 SPARE PARTS, SPECIAL TOOLS AND LUBRICANTS**

A. Spare parts, special tools and lubricants, shall be provided as specified in the various sections of the Contract Documents. Lists of spare parts furnished and tools 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. Special tools are those not normally available in an industrial hardware or mill supply house.

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 Engineer, and shall place them in storage areas designated by the Engineer and Owner. 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 instructions in writing necessary for the proper care of spare parts in storage.

## **1.06 NAMEPLATES AND VALVE TAGS**

A. All component parts of each item of mechanical equipment or device shall bear the manufacturer's corrosion-proof nameplate, giving name of manufacturer, description, size, type, serial number, model number, electrical characteristics, and other data to facilitate maintenance or replacement. The nameplate of a subcontractor or distributor will not be acceptable. In addition to the manufacturer's nameplates, all mechanical and electrical equipment, including such equipment as air ventilating units, heating units, fans, pumps, compressors and tanks, electrical panelboards and motor control centers, shall be permanently identified by name and/or number corresponding to the Drawings. Motors shall be identified by the same name and/or number as the driven unit. Nameplates shall be of plastic or engraved laminated phenolic with characters at least 1/4 inch high.

## **1.07 STORAGE AND PROTECTION OF MATERIALS AND EQUIPMENT**

A. All equipment and materials provided and work performed under this Contract shall be protected from damage before and after installation. The Contractor shall be responsible for work, equipment and materials until finally accepted by the City.

B. During construction, the open ends of work shall be effectively closed with temporary caps or plugs to prevent the entry of foreign material.

C. Where permanent equipment called for under this Contract is installed before the erection of adequate protective structures, the Contractor without additional compensation therefore, shall provide approved effective and durable covers for fully protecting such equipment against damage from the elements or from any other cause.

D. Electrical equipment shall be carefully and effectively covered with waterproof material and otherwise protected at all times from the elements or any other source of damage.

E. All structures, machinery, equipment, piping, electric conduit, wiring, and accessories and appurtenances shall be adequately supported and safeguarded against all damage or injury during performance of work under this Contract. The Contractor shall be responsible for all damage or injury resulting from his operations and shall repair such damage immediately and to the satisfaction of the Engineer.

F. The Contractor shall store and protect products in accordance with the manufacturer's recommendations and the requirements specified herein.

G. Contractor shall make all arrangements and provisions necessary for the storage of materials and equipment. All excavated materials, construction equipment, and materials and equipment to be incorporated into the work shall be placed so as not to injure any part of the work or existing facilities, and so that free access can be achieved at all times to all parts of the work and to all public utility installations in the vicinity of

the work. Materials and equipment shall be kept neatly and compactly stored in locations that will cause a minimum of inconvenience to other contractors, public travel, adjoining owners, tenants, occupants and City of Seaford personnel.

H. Areas available on the job site for storage of materials and equipment shall be as shown, specified or designated and approved by the Engineer. All materials and equipment must be consigned to the Contractor directly. No delivery of materials and equipment will be accepted by the City of Seaford, and all expenses incurred by the City in handling materials or equipment which have been consigned or directed to the City, will be charged to the Contractor.

I. Materials and equipment which are to become the property of the City shall be stored to facilitate their inspection and ensure preservation of the quality and fitness of the work, including proper protection against damage by freezing and moisture. They shall be placed in inside storage areas, unless otherwise shown, specified or acceptable to the Engineer. Materials and equipment, whether installed or being stored prior to installation, shall be protected in full accordance with the manufacturer's recommendations for safeguarding the items. Upon delivery of equipment the Contractor shall furnish the Engineer a copy of the manufacturer's recommendations for the proper storage and protection of the equipment.

J. Lawns, grass plots or other private property shall not be used for storage purposes without written permission of the City or other person in possession or control of such premises.

K. Contractor shall be fully responsible for loss or damage to stored materials.

L. Uncovered Storage:

1. The following types of materials may be stored out-of-doors without cover:
  - a. Reinforcing steel
  - b. Structural steel
  - c. Piping
  - d. Precast concrete items
  - e. Castings
  - f. Handrailing
2. Store the above materials on wood blocking so there is no contact with the ground.

M. Covered Storage:

1. The following type of material may be stored out-of-doors if covered with material impervious to water:
  - a. Rough lumber
  - b. Valves
2. Covers shall be tied down with rope, and sloped to prevent accumulation of water on covers.
3. The above materials shall be stored on wood blocking.

**N. Fully Protected Storage:**

1. The Contractor shall store all products not named above in buildings or trailers which have a concrete or wooden floor, a roof, and fully closed walls on all sides.
2. Heated storage space shall be provided for materials which would be damaged by freezing.
3. Mechanical and electrical equipment shall be protected from being contaminated by dust, dirt and moisture.
4. Humidity shall be maintained at levels recommended by manufacturers for electrical and electronic equipment.
5. Equipment with built-in space heaters shall be connected to a power source and kept in operation at the Contractor's expense.

**\* END OF SECTION \***

# **DIVISION 01 - GENERAL REQUIREMENTS**

## **SECTION 01700**

### **CONTRACT CLOSEOUT**

#### **1.01 DEFINITIONS**

A. Substantial Completion: This project will be considered substantially complete when all equipment and process units have been installed and tested and the facility is ready to begin the transfer of water.

B. Beneficial Occupancy. When the facility is successfully transferring wastewater to the degrees intended by the design, the Owner shall be considered to have beneficial occupancy of the Lift Station.

#### **1.02 CLEANUP**

A. Upon completion of the work and before Final Acceptance will be made, the work site, storage areas, and other areas occupied by the Contractor during construction shall be cleaned, and all surplus and discarded materials, false work and rubbish placed thereon by the Contractor shall be removed by the Contractor. The Contractor's storage area shall be topsoiled, seeded and mulched in accordance with the appropriate Section of Division 2. No separate payment will be made for the work as all such costs shall be included in the lump sum price bid.

#### **1.03 TOOLS, ACCESSORIES AND SPARE PARTS**

A. The Contractor shall, unless otherwise stated, furnish with each type, kind and size of equipment, one complete set of any special tools and appliances which may be needed to adjust, operate, maintain or repair the equipment.

B. Each piece of equipment shall be provided with a substantial name plate, which is securely fastened in place and clearly inscribed with the manufacturer's name, year of manufacture and principal rating data.

C. Where the Specifications require spare parts to be furnished by the Contractor, said spare parts for each item of equipment shall be kept separate and tagged to identify the specific item of equipment to which they belong, shall be packaged so as to preclude damage from handling and storage, and shall be bagged or packaged together where items are small in dimension.

#### **1.04 LUBRICATION CHART AND LUBRICATION**

A. The Contractor shall furnish the Owner a lubrication chart for all equipment furnished or installed by him. The chart shall include the following for each item of equipment.

1. Name of the item.
2. Location of the item.
3. Each point of lubrication on the item.
4. For each point of lubrication, the identification of the lubricant recommended and the recommended frequency of lubrication.

B. The information on the chart shall be developed from manufacturers' printed data or from manufacturers' specific recommendations.

C. The identification of the lubricant by manufacturer's name and product identification (such as Mobil X421) shall be furnished. The name of the manufacturer to be used will be furnished to the Contractor by the Owner.

D. Following the initial operation of the equipment the contractor shall relubricate, changing and adding lubricants, at the intervals or frequency as recommended by the manufacturer until final acceptance.

#### **1.05 DELAYS AND EXTENSIONS OF TIME**

A. The Contractor shall not be entitled to payment or compensation of any kind from the Owner for direct, indirect or impact damages, including but not limited to costs of acceleration arising because of hindrance or delay from any cause whatsoever, whether such hindrances, or delays be reasonable or unreasonable, foreseeable or unforeseeable, or avoidable or unavoidable; provided, however, that this provision shall not preclude recovery by the Contractor of damages for hindrances or delays due solely to fraud or bad faith on the part of the Owner or his agents.

B. In the event the contractor requests an extension of the Contract Time, he shall furnish such justification and supporting evidence as the Owner may deem necessary for a determination of whether or not the Contractor is entitled to an extension of time under the provisions of the Contract. The Owner shall base his findings of fact and decision on such justification and supporting evidence and shall advise the contractor in writing thereof. If the Owner finds that the Contractor is entitled to any extension of the Contract time, the Owner's determination of the total number of days' extension shall be based upon the currently approved progress schedule and on all data relevant to the extension. Such data will be incorporated into the schedule in the form of a revision thereto, accomplished in a timely manner. The Contractor acknowledges and agrees that actual delays in activities or time required to accomplish change order activities

which, according to the schedule, do not affect the critical path and therefore do not have any effect upon contract completion time, will not be a basis for an extension of time.

## **1.06 WARRANTY AND GUARANTEE**

A. After the project is substantially complete and the Owner has beneficial occupancy, all guarantees and warranties shall commence.

B. The contractor warrants and guarantees to the Owner for a period of one year the following:

1. That all materials and equipment provided under this contract are new, unless otherwise specified.
2. That all work is of good quality and free from faults and defects and in accordance with the requirements of the Contract Documents.
3. That all equipment and systems and each and every part thereof, shall operate (with proper care and attention) in a satisfactory and efficient manner, and in accordance with the Contract Documents.
4. That the Contractor shall, upon receipt of written notice from the Owner, promptly replace with workmanship and materials which comply with these Specifications, and re-execute, correct or repair, without cost to the Owner, all work which may be found to be not in accordance with the contract Documents.
5. That the guarantee obligations assumed by the contractor under these Contract Documents shall not be held or taken to be in any way impaired because of the Specifications, indication or approval by or on behalf of the Owner of any articles, materials, means, combinations of things used or to be used in the construction, performance and completion of the work, or any part thereof.
6. That no use or acceptance by the Owner of the work or any part thereof, nor any failure to use the same, nor any repairs, adjustments or corrections made by the Owner due to the Contractor's failure to comply with any of his obligations under the contract Documents, shall impair in any way the guarantee obligations of the Contractor under these Contract Documents.

C. If the Contractor fails to make repairs during the guarantee period, the Owner may cause such damaged or defective work to be repaired and made good at the cost and expense of the Contractor, including, but not limited to, compensation if required for additional professional Owners. The Contractor shall also bear the expenses of making good all work destroyed or damaged by the correction, removal or replacement of his defective work.

## 1.07 TESTING OF EQUIPMENT AND SYSTEMS

A. The Contractor shall be required to submit a schedule to the Engineer regarding the startup of the Production Well.

B. Preliminary Testing:

1. When the Contractor has completed the installation of all equipment including electrical appurtenances, he shall perform preliminary testing on each piece of equipment.
2. Contractor shall provide for the inspection of each piece of equipment by authorized and qualified manufacturer's representatives. These manufacturer's representatives shall verify that all equipment has been installed properly.
3. Manufacturer's representatives shall verify that the individual equipment and/or components are functioning in accordance with the Contract Documents.
4. The manufacturer of each piece of equipment shall provide a manufacturer's certificate in accordance with Section 01300 - SUBMITTALS.

C. Pre-Final Testing:

1. After receipt of all manufacturer's certificates, the Contractor will be required to perform wet tests on all pieces of equipment. Water shall be made available to the Contractor by the Owner.
2. Pre-final testing shall include the actual running of equipment to ensure that all electric and controls are properly connected. This testing shall be done under the supervision of the manufacturer's representative.

D. Final Testing and Startup:

1. Purpose and Scope: The purpose of a final test/startup period is to operate the system to demonstrate that the work constructed in accordance with the Contract Documents will operate on a continuous basis (with prescribed care). The startup period will be for a period of thirty (30) days.
2. Readiness to Operate: When the Contractor has substantially completed the work and when Preliminary and Pre-Final Tests are complete, he shall notify the Engineer in writing, requesting permission to start up and requesting diversion of the flow to the new system. The Engineer will respond in writing, authorizing the start up of the system or will state reasons why the operation may not commence.
3. Plan of Operation: The Contractor shall include with his request for permission to start up and operate the system a schedule for demonstrating the system operation and for the completion of the remainder of the project.
4. Actual operation of the system will be by the Town of Denton. However, the Contractor shall make available his personnel to correct any deficiencies that are discovered during this thirty (30) day startup period.

E. Satisfactory Performance:

1. Satisfactory performance is defined as the system accepting sewage with all equipment and facilities operating satisfactorily for a minimum of thirty (30) days according to the operating schedule.
2. From time to time during the operating period, the Contractor shall demonstrate, as required by the Engineer, that all equipment and systems are capable of operating throughout the full range of specified operation.

**1.08 FINAL ACCEPTANCE**

A. Upon completion of all work under this Contract including the testing of equipment, and placing the well in operation and operating the lift station continuously for sixty (60) days, the Contractor shall request, in writing, final acceptance by the Owner.

B. Prior to this request, all specified operation and maintenance instructions and training shall have been provided for the plant personnel and all certificates, spare parts, test equipment, record drawings, and other items required to be delivered shall have been provided.

C. Upon receipt of the request, the Engineer, the Owner, and the Contractor will make an inspection of the Project to determine the status of completion as follows:

1. If the Engineer does not consider the Project to be complete, the Engineer will notify the Contractor in writing of this fact, and will include the reasons why the Project is not considered complete.
2. Any items not satisfactorily completed or unsatisfactory as determined by the Engineer, shall be promptly remedied or completed.
3. Upon satisfactory correction of defects or incomplete information or work, the Engineer will certify to the Owner that the system is complete.

**\* END OF SECTION \***

# DIVISION 1 - GENERAL REQUIREMENTS

## SECTION 01720

### PROJECT RECORD DOCUMENTS

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Maintain at site one record copy of:
1. Drawings.
  2. Specifications.
  3. Addenda.
  4. Change orders and other modifications to contract.
  5. Engineer's Field Orders or written instructions.
  6. Approved shop drawings, product data and samples.
  7. Field test reports.
  8. Listing of rim elevations measured after substantial completion.
  9. Listing of invert elevations of sewer pipes in manholes measured after substantial completion.

##### 1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store record documents and samples in Contractor's field office apart from documents used for construction.
1. Provide files and racks for storage of documents.
  2. Provide secure storage space for storage of samples.
- B. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.

##### 1.03 MARKING DEVICES

- A. Provide felt tip marking pens for recording information.

##### 1.04 RECORDING

- A. Label each document "PROJECT RECORD" in neat large printed letters.
- B. Record information concurrently with construction progress. Project Record Documents may be periodically inspected at Progress Meetings.

C. Drawings: Legibly mark to record actual construction, showing all changes made during the construction process. Information to include all elevations and field dimensions as constructed. Drawings to include, but not be limited to the following:

1. Rim elevations of manholes.
2. Inverts in and out of manholes.
3. Stationing from manholes to laterals.
4. Stationing for fittings, valves and air release manholes on force mains.
5. All deviations from the Contract Documents.

D. Specifications and Addenda: Legibly mark each section to record:

1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
2. Changes made by Field Order or by Change Order.

#### **1.05 SUBMITTAL**

A. At contract close-out, deliver Record Documents to Engineer or Owner as directed.

B. Accompany submittal with transmittal letter in duplicate, containing:

1. Date.
2. Project title and number.
3. Contractor's name and address.
4. Title and number of each Record Document.
5. Signature of Contractor or his authorized representative.

C. Submit a listing of rim elevations and sewer pipe invert elevations for all manholes and for all pipes entering and exiting the manholes.

#### **PART 2 - PRODUCTS**

A. As-built drawings.

B. Submit listing of rim elevations and sewer pipe elevations for all manhole rims and for all sewer pipes entering and exiting the manholes.

#### **PART 3 - EXECUTION**

A. Submit as-built drawings.

B. Registered professional surveyor shall take rim elevation and sewer pipe elevations for all manholes and for all sewer pipes entering and exiting the manholes. Survey shall be performed after restoration and substantial completion has been achieved.

All measurements shall be witnessed by the Engineer and the Contractor.

**\* END OF SECTION \***

# **DIVISION 1 - GENERAL REQUIREMENTS**

## **SECTION 01730**

### **OPERATING AND MAINTENANCE DATA**

#### **PART 1 - GENERAL**

##### **1.01 DESCRIPTION**

- A. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under the Contract.
- B. Furnish the Engineer six (6) copies of a complete instruction manual for installation, operation, maintenance, and lubrication of each component of mechanical and electrical equipment.
- C. Submit all manuals as soon as possible after shop drawing approval, but not later than the time indicated on the General Construction Schedule as presented in Section 01310. The Owner will retain a minimum of 10 percent of the Contract price until after such time that operation and maintenance manuals have been submitted to the Engineer, reviewed for completeness and approved.
- D. Instruct Owner's personnel in the maintenance of products and in the operation of equipment and systems.

##### **1.02 QUALITY ASSURANCE**

- A. Preparation of data shall be done by personnel:
  - 1. Trained and experienced in maintenance and operation of the described products.
  - 2. Completely familiar with requirements of this Section.
  - 3. Skilled as a technical writer to the extent required to communicate essential data.
  - 4. Skilled as a draftsman competent to prepare required drawings.

##### **1.03 FORM OF SUBMITTALS**

- A. Prepare data in the form of an instructional manual for use by Owner's personnel.

**B. Format:**

1. Size: 8-1/2 in. x 11 in., standard; 11 in. x 17 in., maximum size.
2. Paper: 20 pound minimum, white, for typed pages.
3. Text: Manufacturer's printed data, or neatly typewritten.
4. Drawings:
  - a. Provide reinforced punched binder tab, bind in with text.
  - b. Fold larger drawings to the size of the text pages.
5. Provide fly-leaf for each separate product, or each piece of operating equipment.
  - a. Provide typed description of product, and major component parts of equipment.
  - b. Provide indexed tabs, reinforced on edge.
6. Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". List:
  - a. Title of project.
  - b. Identity of separate structure as applicable.
  - c. Identity of general subject matter covered in the manual.

**C. Binders:**

1. Commercial quality three-ring binders with durable and cleanable plastic covers.
2. Maximum ring size: 1 inch.
3. When multiple binders are used, correlate the data into related consistent groupings.

**1.04 CONTENT OF MANUAL**

**A. Neatly typewritten table of contents for each volume, arranged in a systematic order.**

1. Contractor, name of responsible principal, address and telephone number.
2. A list of each product required to be included, indexed to the content of the volume.
3. For each product, list the name, address and telephone number of:
  - a. Subcontractor or installer.
  - b. Maintenance contractor, as appropriate.
  - c. Identify the area of responsibility of each.
  - d. Local source of supply for parts and replacement.
4. Identify each product by product name and other identifying symbols as set forth in Contract Documents.

**B. Product Data:**

1. Include only those sheets which are pertinent to the specific product.
2. Annotate each sheet to:
  - a. Clearly identify the specific product or part installed.
  - b. Clearly identify the data applicable to the installation.
  - c. Delete references to inapplicable information.

C. Drawings:

1. Supplement product data with drawings as necessary to clearly illustrate:
  - a. Relations of component parts of equipment and systems.
  - b. Control and flow diagrams.
2. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.
3. Do not use Project Record Documents as maintenance drawings.

D. Written text, as required to supplement product data for the particular installation:

1. Organize in a consistent format under separate headings for different procedures.
2. Provide a logical sequence of instructions for each procedure.

E. Copy of each warranty, bond and service contract issued.

1. Provide information sheet for Owner's personnel, including:
  - a. Proper procedures in the event of failure.
  - b. Instances which might affect the validity of warranties or bonds.

### **1.05 MANUAL FOR MATERIALS AND FINISHES**

A. Submit copies of complete manual in final form.

B. Content, for products, applied materials and finishes:

1. Manufacturer's data, giving full information on products.
  - a. Catalog number, size, composition.
  - b. Color and texture designations.
  - c. Information required for reordering special manufactured products.
2. Instructions for care and maintenance.
  - a. Manufacturer's recommendation for types of cleaning agents and methods.
  - b. Cautions against cleaning agents and methods which are detrimental to the product.
  - c. Recommended schedule for cleaning and maintenance.

C. Content, for moisture-protection and weather-exposed products:

1. Manufacturer's data, giving full information on products.
  - a. Applicable standards.
  - b. Chemical composition.
  - c. Details of installation.
2. Instructions for inspection, maintenance and repair.

## **1.06 MANUAL FOR EQUIPMENT AND SYSTEMS**

A. Submit copies of complete manual in final form.

B. Manuals to include operating and maintenance information on all systems and items of equipment. The data shall consist of catalogs, brochures, bulletins, charts, schedules, equipment numbers, wiring diagrams and assembly drawings which shall describe location, operation, maintenance, lubrication, operating weight, lubrication charts showing manufacturer recommended lubricants for each rotating or reciprocating unit, and other necessary for the Owner to establish a complete maintenance program.

C. The following items shall be included in the O & M Manual:

1. Two (2) prints of one (1) 8x10 color photograph of each piece of equipment.
2. Name of manufacturer with address and phone number for service and parts.
3. Name, address and phone number of the nearest service representative for the manufacturer.
4. Complete "nameplate" data, including serial number, for each piece of equipment.
5. A list of spare parts including part numbers and other information needed to order parts.
6. A separate chapter, complete and detailed listing and describing routine maintenance for each time interval: daily, weekly, monthly, quarterly, semi-annually, and yearly. Routine maintenance shall include lubrication, adjustments, inspections, calibrations, etc., and a list of acceptable equivalent lubricants from at least three (3) different major manufacturers whose products are locally available. A manufacturer and/or vendor response such as "see instruction manual" will not be acceptable.
7. Contractor shall complete an Equipment Data Collection Sheet for each equipment item. A sample card system is attached to this specification for Contractor's reference. Failure to submit said card shall be sufficient reason for rejection of O & M submittal.
8. Weight of individual components of each piece of equipment weighing

- over 100 pounds.
- 9. Certified performance curves for all pumps.
- 10. Approved shop drawings of each piece of equipment.
- 11. Complete electrical wiring diagrams.

D. Content, for each unit of equipment and system, as appropriate:

- 1. Description of unit and component parts.
  - a. Function, normal operating characteristics and limiting conditions.
  - b. Performance curves, engineering data and tests.
  - c. Complete nomenclature and commercial number of all replaceable parts.
- 2. Operating Procedures:
  - a. Start-up, break-in, routine and normal operating instructions.
  - b. Regulation, control, stopping, shut-down and emergency instructions.
  - c. Summer and winter operating instructions.
  - d. Special operating instructions.
- 3. Maintenance Procedures:
  - a. Routine operations.
  - b. Guide to "trouble-shooting".
  - c. Disassembly, repair and reassemble.
  - d. Alignment, adjusting and checking.
- 4. Servicing and lubrication schedule.
  - a. List of lubricants required.
- 5. Manufacturer's printed operating and maintenance instructions.
- 6. Description of sequence of operation by control manufacturer.
- 7. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
  - a. Predicted life of parts subject to wear.
  - b. Items recommended to be stocked as spare parts.
- 8. As-installed control diagrams by controls manufacturer.
- 9. Each contractor's coordination drawings.
  - a. As-built color coded piping diagrams.
- 10. Charts of valve tag numbers, with the location and function of each valve.
- 11. List of original manufacturer's spare parts, manufacturer's current prices and recommended quantities to be maintained in storage.
- 12. Other data as required under pertinent sections of specifications.

E. Content, for each electric and electronic system, as appropriate:

- 1. Description of system and component parts.
  - a. Function, normal operating characteristics, and limiting conditions.
  - b. Performance curves, engineering data and tests.
  - c. Complete nomenclature and commercial number of replaceable

- parts.
- 2. Circuit directories of panel boards.
  - a. Electrical service.
  - b. Controls.
  - c. Communications.
- 3. As-built color coded wiring diagrams.
- 4. Operating procedures:
  - a. Routine and normal operating instructions.
  - b. Sequences required.
  - c. Special operating instructions.
- 5. Maintenance procedures:
  - a. Routine operations.
  - b. Guide to "trouble-shooting."
  - c. Disassembly, repair and reassemble.
  - d. Adjustment and checking.
- 6. Manufacturer's printed operating and maintenance instructions.
- 7. List of original manufacturer's spare parts, manufacturer's current prices and recommended quantities to be maintained in storage.
- 8. Other data as required under pertinent sections of specifications.

F. Prepare and include additional data when the need for such data becomes apparent during instruction of Owner's personnel.

#### **1.07 INSTRUCTION OF OWNER'S PERSONNEL**

- A. Fully instruct Owner's designated operating and maintenance personnel in the operation, adjustment and maintenance of all products, equipment and systems.
- B. Operating and maintenance manual shall constitute the basis of instruction.
  - 1. Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.
  - 2. Use of manufacturer's technicians.

**\* END OF SECTION \***

# DIVISION 01 – GENERAL REQUIREMENTS

## SECTION 01740

### WARRANTIES AND BONDS

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Compile specified warranties and bonds as well as all required final inspection certificates.
- B. Compile specified service and maintenance contracts.
- C. Co-execute submittals when so specified.
- D. Review submittals to verify compliance with Contract Documents.
- E. Submit to Engineer for review and transmittal to Owner.

##### 1.02 SUBMITTAL REQUIREMENTS

- A. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers and subcontractors. Assemble the certificates of all required final inspections, such as, but not limited to, electrical and plumbing.
- B. Six (6) each original signed copies are required.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
  - 1. Product or work item.
  - 2. Firm, with name of principal, address and telephone number.
  - 3. Scope.
  - 4. Date of beginning of warranty, bond or service and maintenance contract.
  - 5. Duration of warranty, bond or service maintenance contact.
  - 6. Provide information for Owner's personnel:
    - a. Proper procedure in case of failure.
    - b. Instances which might affect the validity of warranty or bond.
  - 7. Contractor, name of responsible principal, address and telephone number.

### 1.03 FORM OF SUBMITTALS

- A. Prepare in duplicate packets.
- B. Format:
  - 1. Size 8-1/2 in. x 11 in., punch sheets for 3-ring binder.
    - a. Fold larger sheets to fit into binders.
  - 2. On the cover, identify each packet with typed or printed title "WARRANTIES AND BONDS". List the following:
    - a. Title of Project.
    - b. Name of Contractor.
- C. Binders: Commercial quality, three-ring, with durable and cleanable plastic covers.

## PART 2 - PRODUCTS

### 2.01 SUBMITTALS REQUIRED

- A. Submit warranties, bonds, service and maintenance contracts as specified in the respective sections of the specifications.

## PART 3 - EXECUTION

- A. Make submittals within ten (10) days after Date of Substantial Completion and prior to final request for payment.
- B. Final payment, including release of retainage, shall not be made until proper, complete submittals are made and accepted by the Owner and Engineer.
- C. Start of the warranty period for each item of work shall be at the date of *final acceptance*.

\* END OF SECTION \*