

## **SECTION 01010**

### **SUMMARY OF WORK**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Project Scope and Location
- B. Owner Supplied Products
- C. Contractor Use of Site and Premises
- D. Existing Services, Structures and Underground Facilities
- E. Protection of Work and Improvements
- F. Schedules and Work Sequence
- G. Owner Occupancy

##### **1.02 PROJECT SCOPE AND LOCATION**

- A. Construction of a nominal 246,000 gallon, AWWA D103, 42' X 24', glass-lined, bolted steel water storage tank and related appurtenances.
- B. The project site is located at 105 W 9<sup>th</sup> Street Dresden, Ohio.
- C. Contractor shall provide all items, articles, materials, operations or methods mentioned or scheduled on the Drawings or herein specified: including all labor, supervision, equipment, incidentals, taxes and permits necessary to complete the Work as described within the Contract Documents. Contractor shall install all items provided by Owner as mentioned or scheduled on the Drawings or herein specified.

##### **1.03 OWNER SUPPLIED PRODUCTS**

- A. None.

##### **1.04 CONTRACTOR USE OF SITE AND PREMISES**

- A. Access to Site: Limited to Project Contractor(s).
- B. Access to Premises: Limited to Project Contractor(s).

C. Construction Operations: Easements were obtained for this project. Contractor shall contain operations to within the rights-of-way, easements or lands upon which the work is to be performed.

D. Utility Outages and Shutdown: Contractor shall coordinate with the Owner regarding the time period when the existing water storage tank will be removed from service to facilitate construction of the replacement storage tank. Coordination for removal of the tank from service shall occur a minimum of 72 hours in advance, or such minimum period of time as necessary for coordination of the transfer of telemetry control of the water treatment plant from the existing reservoir to the existing elevated water storage tank.

#### 1.05 EXISTING SERVICES, STRUCTURES AND UNDERGROUND FACILITIES

A. Interruption of existing water service shall be kept to an absolute minimum and shall be limited to times approved by the Owner.

B. If deemed necessary by the Owner, such work shall be accomplished after Owner's normal office/operation hours.

C. Work shall not commence until all labor, materials and equipment are available and Work can continue without interruption or delay.

D. Should uncharted or incorrectly charted piping or other utilities be encountered during installation, notify Owner and consult with utility owner immediately for directions.

E. Cooperate with Owner and utility companies in keeping respective services and facilities in operation and repair any damaged utilities to the satisfaction of the utility owner.

F. Contractor shall not interrupt existing utilities serving facilities occupied and used by the Owner or others, except when permitted in writing by the Owner.

G. Any accidental interruption of services shall be repaired immediately, including provision of temporary facilities until permanent repairs can be made.

H. Existing underground facilities may consist of gas lines, water lines, storm sewers, and buried telephone and electric cables. The utilities shown on the Drawings are based on data furnished by the utility companies listed in the Drawings and on field observations and are believed to be reasonably accurate.

- I. Contractor shall notify the Ohio Utilities Protection Service (OUPS), (1-800-362-2764), the Oil and Gas Producer's Underground Protection Service (OGPUPS), (1-800-925-0988), and any other non-OUPS/non-OGPUPS utility a minimum of 48 hours prior to commencing work on the project to coordinate the marking of utilities in the field. Based on information made available by the various utility companies, the companies shown in the Drawings have facilities in the area.
- J. Contractor shall proceed with caution in the excavation and preparation of the Site so the exact location of structures and Underground Facilities can be determined. Contractor shall include in Contract Price any costs for temporary or permanent relocations of such structures and Underground Facilities required to complete the Work unless specifically indicated otherwise in the Specifications.
- K. Contractor shall keep an accurate and complete record of all such structures and Underground Facilities encountered and shall provide the Owner a copy of this record. The record shall include a description of the item encountered, opinion as to condition, and adequate measurements and depths so that the item can be located in the future.
- L. Contractor shall inspect all structures and Underground Facilities for condition and soundness. Unsound conditions shall be reported to the structure or facility owner immediately after exposing. Contractor shall not proceed with the work until the structure or facility owner has been notified. Owner shall then be given time to inspect and correct, if required, the structure or Underground Facility. Contractor shall make claim under the provisions of Articles 11 and 12 of the General Conditions should the Contractor feel a price or time adjustment is justified.
- M. Any additional costs incurred because of the failure of the Contractor to report the condition of any and all existing structure or Underground Facility encountered shall be paid by the Contractor.
- N. Whenever the Engineer feels it is necessary to explore and excavate to determine the location of existing structures and Underground Facilities, the Contractor shall make explorations and excavations for such purposes. If Contractor is required to perform additional work in making the explorations and excavations, extra compensation will be allowed as provided for in the General Conditions.

#### 1.06 PROTECTION OF WORK AND IMPROVEMENTS

- A. Contractor shall protect the property of the Owner, existing improvements, and the Work installed by the Contractor and others from abuse, damage,

dust, debris, and other objectionable materials resulting from construction activities.

- B. Contractor shall provide suitable covers, partitions, or other dust and fume containment devices to suit construction operations.
- C. Contractor shall keep property, existing improvements and the Work, including structures, mains, fittings and accessories free from dirt and foreign matter at all times.
- D. Contractor shall provide temporary plugging of openings, holes and pipe ends that are existing or that the Contractor has installed.
- E. Property, improvements and Work damaged by Contractor shall be repaired or replaced by Contractor to the satisfaction of the Owner.

#### 1.07 SCHEDULES AND WORK SEQUENCE

- A. Contractor shall provide schedules for performance of the Work in accordance with the provision set forth within the General Conditions. The schedule(s) shall detail all phases of construction to completion with milestones and associated dates. The schedule(s) shall be presented in a format acceptable to the Owner and Engineer.

#### 1.08 OWNER OCCUPANCY

- A. Owner shall have access to site and premises throughout the term of the project.

#### PART 2 PRODUCTS

Not Applicable.

#### PART 3 EXECUTION

Not Applicable.

END OF SECTION

## **SECTION 01025**

### **MEASUREMENT AND PAYMENT**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Measurement and payment criteria applicable to the Work performed under a lump sum and / or unit price payment method.
- B. Defect Assessment and non-payment for rejected work.

##### **1.02 AUTHORITY**

- A. Contractor shall take all measurements and compute quantities. The Owner or Engineer will verify measurements and quantities.
- B. Contractor shall assist by providing necessary equipment, labor, and survey equipment as required when requested by Owner or Engineer.

##### **1.03 GENERAL REQUIREMENTS**

- A. Lump Sum and unit prices shall include providing all costs required for the complete construction of the specified unit of work including cost of materials and delivery; cost of installation; labor including social security, insurance, and other required fringe benefits; workman's compensation insurance; bond premiums; rental of equipment and machinery; taxes; testing; surveys; incidental expenses; and supervision.
- B. The Owner reserves the right to reject the Contractor's measurement of completed work that involves use of established unit prices, and to have this Work measured by an independent surveyor acceptable to the Contractor at the Owner's expense.
- C. Contract Sum adjustments will be by Change Order on basis of net accumulative change for each unit price category.
  - 1. Except as otherwise specified, unit prices shall apply to both deductive and additive variations of quantities.
  - 2. Lump sum and unit prices in the Agreement shall remain in effect until date of final completion of the entire Work.
- D. Partial payment for material and equipment properly stored and protected will be made in accordance with requirements of the General Conditions.

E. Payment will be made at the respective contract unit and lump sum price for each item shown in the Agreement, installed and accepted, which price and payment shall constitute full compensation for furnishing all materials and performing all Work in connection therewith and incidental thereto.

1. No separate payment will be made for:
  - a. Record Drawings
  - b. Construction of haul roads as may be required.
  - c. Testing

#### 1.04 UNIT QUANTITIES SPECIFIED

- A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities supplied or placed in the Work and verified by the Owner or Engineer determine payment.
- B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit sum/prices contracted.
- C. If a substantial change in quantity of any line item is anticipated, the Contractor shall notify the Owner or Engineer immediately.

#### 1.05 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of the Engineer and Owner, it is not practical to remove and replace the Work, the Engineer and Owner will direct one of the following remedies:
  1. The defective Work may remain, but the unit/lump sum price will be adjusted to a new price at the discretion of the Engineer and Owner.
  2. The defective Work will be partially repaired to the instructions of the Engineer and Owner, and the price will be adjusted to a new price at the discretion of the Engineer and Owner.
  3. The individual specification sections may modify these options or may identify a specific method for modification or correction.
- C. The authority of the Engineer and Owner to assess the defect and identify payment adjustment is final.

#### 1.06 NON-PAYMENT FOR REJECTED PRODUCTS

- A. Payment will not be made for any of the following:
  1. Products wasted or disposed of in a manner that is not acceptable.

2. Products determined as unacceptable before or after placement.
3. Products not completely unloaded from the transporting vehicle.
4. Products placed beyond the lines and levels of the required Work.
5. Products remaining on hand after completion of the Work.
6. Loading, hauling and disposing of rejected Products.

#### 1.07 PROJECT ITEM DESCRIPTION

##### A. Mobilization / Demobilization – Item 1

1. Description: The work under this item includes all work associated with preparing for the actual construction work, including but not limited to mobilization and demobilization of equipment and labor, bonds and insurance, submittals, basic surveying, yard preparation, erection of project signs, and similar items. It also includes the cost of removing equipment, material and related appurtenances from the project site at the completion of construction operations.
2. Measurement: Measurement will be made on a lump sum basis.
3. Payment: Payment will be made on a lump sum basis with 50% of the price bid payable upon full mobilization to the project site by the Contractor and 50% payable upon substantial completion and demobilization of primary equipment and facilities from the project site.

##### B. Waterline – Items 2 and 3, inclusive

1. Description: The work included under these items includes furnishing all labor, materials, and equipment for excavation, rock excavation, dewatering, bedding for the pipe, the various sizes of pipe, fittings, blocking and restraints, pipe stubs, backfill, testing, temporary paving and all other items not identified in other payment items.
2. Measurement: Measurement will be made along the centerline of the installed pipe inclusive of fittings and valves.
3. Payment: Payment will be made at the contract unit price per foot for the size of line installed as stated in the bid schedule complete in place.

##### C. Tracer Wire – Item 4

1. Description: The work included under this item includes furnishing all labor, material, and equipment for installation of the tracer wire in accordance with the Contract Documents.
2. Measurement: Measurement will be made per linear foot of tracer wire installed on the main waterline complete in place.
3. Payment: Payment will be made at the contract unit price per linear foot for the tracer wire installed as stated in the bid schedule.

##### D. Valves – Items 5 and 6, inclusive

1. Description: The work included under this item includes furnishing all labor, material, and equipment for excavation, dewatering if necessary, bedding, installation of the various sizes of valves and valve boxes, blocking and restraints, backfill, tracer wire on the valve, testing, temporary paving, and all other items not identified in other payment items.
2. Measurement: Measurement will be made per each for the size of valve installed complete in place.
3. Payment: Payment will be made at the contract unit price per each for the size of valve installed as stated in the bid schedule complete in place.

E. 6" Hydrant – Item 7

1. Description: The work included under this item includes furnishing all labor, material, and equipment necessary for installation of the hydrant including excavation, dewatering if necessary, bedding, hydrant, anchoring tee and connection to the mainline, pipe nipple (swivel) between the mainline and hydrant, blocking and restraints, backfill, tracer wire on the hydrant lead, marking tape, testing, temporary paving, and all other items not identified in other payment items. Watch valves associated with the hydrant setting shall be measured and paid under a separate bid item.
2. Measurement: Measurement will be made per each hydrant installed complete in place.
3. Payment: Payment will be made at the contract unit price per each for the hydrant as stated in the bid schedule complete in place.

F. Connection to Existing Waterline – Items 8 through 11, inclusive

1. Description: The work under this item includes all labor, material and equipment for making connection to existing waterline at the locations noted in the Drawings. Work shall include field verifying the existing pipe size and material, tapping or cutting the existing pipe as designated, pipe connections, required fittings, isolation of water service where the existing line is to be cut, excavation, bedding, backfill, testing, accessories and all other associated work.
2. Measurement: Measurement will be made on a lump sum basis.
3. Payment: Payment will be made on a lump sum basis for the percent of work complete.

G. 246,000 Gallon GWST (42'Ø x 24') – Item 12

1. Description: The work under this item includes all work, labor, materials, equipment, and testing associated with furnishing and erecting a water



storage tank, including foundation, glass-coated, bolted-steel tank structure and tank appurtenances as shown on the Drawings and outlined in the Specifications.

2. Measurement: Measurement will be made on a lump sum basis.
3. Payment: Payment will be made at the contract lump sum price indicated on the bid schedule on a percent complete basis.

#### H. Existing Tank Demolition - Item 13

1. Description: The work under this item includes all labor, materials, and equipment necessary to demolish the ground water storage tank as outlined on the Drawings and within the Specifications. Included with this item shall be removal of the tank, and loading, transport and proper disposal of the resulting debris.
2. Measurement: Measurement will be made on a lump sum basis.
3. Payment: Payment will be made at the contract lump sum price indicated on the bid schedule on a percent complete basis.

#### I. Tank Mixing System - Item 14

1. Description: The work under this item includes all labor, materials, and equipment necessary to design and install a passive internal mixing system.
2. Measurement: Measurement will be made on a lump sum basis.
3. Payment: Payment will be made at the contract lump sum price indicated on the bid schedule on a percent complete basis.

#### J. Seeding and Mulching – Item 15

1. Description: The work under this item includes all labor, materials, and equipment necessary to restore all areas affected by the completion of the work to at least their preconstruction conditions including final grading, removal of rocks and debris, seeding, mulching, reseeding if necessary, and all other associated work.
2. Measurement: Measurement will be made on a lump sum basis.
3. Payment: Payment will be made at the contract lump sum price indicated on the bid schedule on a percent complete basis.

## PART 2 PRODUCTS

Not applicable.

## PART 3 EXECUTION

### 3.01 PAYMENT APPLICATION

#### A. Required Forms

1. Utilize Application for Payment Form provided in Contract Documents Section of this Project Manual.

#### B. Preparation of Applications:

1. Present required information in typewritten form.
2. Execute certification by signature of authorized officer.
3. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored Products.
4. List each authorized Change Order.
5. Prepare Application for Final Payment as specified in Section 01700.

#### C. Submittal Procedures:

1. Submit a minimum of four (4) originally executed copies of each Application for Payment, Schedule of Values, and supporting documentation including, but not limited to invoices, weight slips, and shipping receipts.
2. Submit an updated construction schedule with each Application for Payment.
3. Payment Period: Submit Application for Payment by the first of each month to the Engineer.
4. Submit with transmittal letter as specified for Submittals in Section 01300.
5. Submit two (2) originally executed waivers for partial payment.
6. Submit two (2) certified payroll reports for payroll period.
7. If requesting payment for stored materials, submit four (4) copies of material invoice and shipping request.
8. Submit any other documentation as requested by the Engineer or Owner.

#### D. Substantiating Data

1. When Owner or Engineer requests substantiating information, submit data justifying dollar amounts in question.
2. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

END OF SECTION

## **SECTION 01039**

### **COORDINATION, FIELD ENGINEERING AND MEETINGS**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES:**

- A. Coordination – General.
- B. Coordination with Owner's Operations.
- C. Field engineering.
- D. Progress meetings.
- E. Pre-installation conferences.

##### **1.02 COORDINATION - GENERAL**

- A. Contractor shall coordinate scheduling, submittals, and work of the various sections of the work to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later. Refer to Section 01010 – Summary of Work for specific construction sequence.
- B. Contractor shall verify that utility requirement characteristics of operating equipment are compatible with building utilities and coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Contractor shall coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on drawings and shall follow routing shown for pipes, ducts and conduit as closely as practicable. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance and for repairs.
- D. In finished areas, except as otherwise indicated, Contractor shall conceal pipes, ducts and wiring within the construction and coordinate the locations of fixtures and outlets with finish elements.
- E. Contractor shall coordinate completion and clean up of work of separate sections in preparation for substantial completion and for portions of work designated for Owner's occupancy.
- F. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to

minimize disruption of Owner's activities.

- G. Coordinate work with other site contractors involved in the Project as indicated by the Plans and Specifications, or as directed by the Owner.

#### 1.03 COORDINATION WITH OWNER'S OPERATIONS

- A. The Contractor shall schedule construction activities so as to keep existing Owner's roadways, utilities and facilities in operation at all times unless otherwise approved by the Owner.
- B. Temporary roadways if required to divert traffic around this work area shall be furnished, maintained and subsequently removed by the Contractor. Vehicular and pedestrian traffic shall be controlled through the jobsite.
- C. All temporary pumping, piping or miscellaneous equipment required shall be furnished, maintained and subsequently removed by the Contractor.
- D. All proposed construction sequences, and all process shutdowns and equipment tie-ins shall be scheduled well in advance and shall occur only after being approved by the Owner.

#### 1.04 FIELD ENGINEERING

- A. Contractor shall locate and protect property stakes, legal survey monuments, and survey control and reference points. Contractor shall pay for replacement of disturbed property stakes and legal survey monuments by a Professional Surveyor registered in the State of Ohio and acceptable to the Owner.
- B. Contractor shall provide field engineering services as required to establish elevations, lines, and levels, utilizing recognized engineering survey practices.
- C. Contractor shall be responsible for all lines, elevations, and measurements of buildings, structures, piping, utilities, and other work executed by the Contractor under the Contract. Contractor must exercise proper precaution to verify figures before laying out the work, and will be held responsible for any error resulting from their failure to exercise such precaution.

#### 1.05 PROGRESS MEETINGS

- A. Progress meetings will be held throughout progress of the Work at intervals agreed to by the Owner, Engineer and Contractor. Interval will generally be monthly.
- B. Contractor's project manager, job superintendent, major subcontractors

and suppliers shall attend as appropriate to agenda topics for each meeting. Contractor's representatives shall have authority to bind Contractor to decisions at the meetings.

- C. At the meetings the Contractor shall submit typed reports detailing the progress of the Work, compliance with submitted progress schedules and future construction plans affecting the schedule of the Work.
- D. The Engineer will prepare and distribute minutes to all attending parties.

#### 1.06 PREINSTALLATION CONFERENCES

- A. When required in individual specification Section, convene a pre-installation conference at work site prior to commencing work of the Section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific Section.
- C. Notify Engineer a minimum of five (5) days in advance of meeting date.
- D. Review conditions of installation, preparation and installation procedures, and coordination with related work.

#### PART 2 PRODUCTS

Not Applicable.

#### PART 3 EXECUTION

Not Applicable.

END OF SECTION

## **SECTION 01050**

### **FIELD ENGINEERING**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Survey and field engineering.
- B. Quality control.
- C. Submittals.
- D. Project record documents.

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

- A. Employ a Professional Surveyor registered in the State of Ohio and acceptable to Owner, to perform survey work of this section.
- B. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.

##### **1.03 SUBMITTALS FOR REVIEW**

- A. Submit name, address, and telephone number of Surveyor before starting work.
- B. On request, submit documentation verifying accuracy of survey work.
- C. Submit a certificate signed by the Professional Surveyor, that the elevations and locations of the Work are in conformance with Contract Documents.

##### **1.04 PROJECT RECORD DOCUMENTS**

- A. Maintain a complete and accurate log of control and survey work as it progresses. The project record documents shall be available at every progress meeting for verification that the actual work is being properly recorded.
- B. Submit Record Documents under provisions of Section 01700.

##### **1.05 EXAMINATION**

- A. Verify locations of survey control points prior to starting work.

- B. Promptly notify Engineer of any discrepancies discovered.

#### 1.06 SURVEY REFERENCE POINTS

- A. Contractor to locate and protect survey control and reference points.
- B. Control datum for survey that is indicated on Drawings.
- C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- D. Promptly report to Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Engineer.

#### 1.07 SURVEY REQUIREMENTS

- A. Provide field survey services. Utilize recognized survey practices.
- B. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
  - 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
  - 2. Grid or axis for structures.
  - 3. Building foundation, column locations, and ground floor elevations.
  - 4. All other proposed work as shown on the Drawings.
- C. Periodically verify layouts by same means.

#### 1.08 SURVEYS FOR MEASUREMENT AND PAYMENT

- A. Perform surveys to determine quantities of unit cost, including control surveys to establish measurement reference lines at request of Owner or Engineer. Notify Owner and Engineer prior to starting work.

### PART 2 PRODUCTS

Not Applicable.

PART 3 EXECUTION

Not Applicable.

END OF SECTION



## **SECTION 01060**

### **REGULATORY REQUIREMENTS**

#### **PART 1 GENERAL**

##### **1.01 WORK INCLUDED**

- A. OSHA Requirements
- B. Roadway Limits

##### **1.02 OSHA REQUIREMENTS**

- A. All work, including site safety, equipment, materials, and fabricated items provided under the Contract, shall comply with the provisions of the "Occupational Safety and Health Act" (OSHA), and all other applicable federal, state, county and local laws, ordinances, codes, the requirements set forth herein, and any regulations that may be specified in other parts of these Contract Documents. Where any of these are in conflict, the more stringent requirements shall be followed. Job site safety shall be the sole responsibility of the Contractor.
- B. The Contractor's failure to thoroughly familiarize himself with the aforementioned safety provisions shall not relieve him from compliance with the obligations and penalties set forth herein.

##### **1.03 ROADWAY LIMITS**

- A. Contractor shall comply with posted roadway weight restrictions including any seasonal weight restrictions established by the governing highway authority.

#### **PART 2 PRODUCTS**

Not Applicable.

#### **PART 3 EXECUTION**

Not Applicable.

**END OF SECTION**

## **SECTION 01300**

### **SUBMITTALS**

#### **PART 1 GENERAL**

##### **1.01 SUMMARY**

###### **A. Work Included:**

1. Whenever possible throughout the Contract Documents, the minimum acceptable quality of workmanship and materials has been defined either by manufacturer's name and catalog number or by reference to recognized industry standards.
2. To facilitate Contractor's understanding of the design intent, procedures have been established for advanced submittal of design data and for its review or rejection by the Engineer.
3. The types of submittal requirements specified in this section include shop drawings, product data, samples and other miscellaneous work related submittals.

###### **B. Related work described elsewhere:**

1. Additional requirements for submittals are described in other sections of these specifications. Submittals shall conform to Article 6 of the General Conditions.
2. Section 01310 – Progress Schedules
3. Section 01730 – Operation and Maintenance Manuals

##### **1.02 IDENTIFICATION OF SUBMITTALS**

###### **A. Contractor shall completely identify each submittal and re-submittal by showing at least the following information:**

1. Name and address of submitter, plus name and telephone number of the individual who may be contacted for further information.
2. Name and location of project and identification number.
3. Drawing number and specification section number to which the submittal applies.
4. Include the date of each submittal or re-submittal.

###### **B. Contractor shall sequentially number submittals and shall provide a transmittal form. Include the project name, project number along with the sequential number. Re-submittals to have original submittal number with an alphabetic suffix.**

- C. Provide within the transmittal or via supplemental sheets a space for Contractor and Engineer review stamps. Engineer stamp requires a minimum 2-inch by 3-inch space.

#### 1.03 GROUPING OF SUBMITTALS

- A. Unless otherwise specifically permitted by the Engineer, the Contractor shall make all submittals in groups containing all associated items so that information is available for checking each when it is received.
- B. Partial submittals may be rejected as not complying with the provisions of the Contract Documents.
- C. Review will be performed on a complete submittal as received. The Engineer will not divide a submittal and take separate action on each portion.

#### 1.04 TIMING OF SUBMITTALS

- A. Contractor shall make all submittals far enough in advance of scheduled dates of installation to provide required time for reviews, for securing necessary approval, for possible revision and re-submittal and for placing orders and securing delivery.
- B. Review of submittals by Engineer will be made and responded to within 14 calendar days after receipt of same unless additional information is required. In lieu of returning a document when supplemental information is required, a written hold notice may be issued which will suspend the review period until a response is received.
- C. If review of a submittal is dependent upon information to be provided via another submittal which has not been received, the first submittal will be held until the second submittal is received. Written notice will be provided to the Contractor regarding the hold status of the first submittal.

#### 1.05 SHOP DRAWINGS

- A. Shop drawings include specially-prepared technical data for this project including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements and similar information not in standard printed form for general application to a range of similar projects. Shop drawings submitted for all manufactured or fabricated items. See individual technical sections for specialized requirements.
- B. All documents shall be clear and readable.

- C. Contractor shall make all shop drawings accurately to scale and sufficiently large to show all pertinent aspects of the item and its method of connection to the work.
- D. Shop drawings shall be checked, approved, and stamped by Contractor in accordance with the General Conditions before transmittal to Engineer for review and approval.
- E. Complete shop drawings and descriptive data shall be submitted on all manufactured or fabricated items prior to 25% completion of the work. Except as noted, six hard copies of shop drawings and descriptive data shall be submitted to Engineer for approval. Electronic submissions are not acceptable. Three copies of these will be returned to the Contractor if approved. If the shop drawings are not approved two corrected copies will be returned to the Contractor for use in resubmittal. If Contractor desires more than three approved copies, submitted quantity shall be increased accordingly.
- F. It is the Contractor's responsibility to provide other affected contractors and/or sub-contractors with copies of approved shop drawings.
- G. Shop drawings shall be submitted to the Engineer will be reviewed and stamped "Approved," "Approved as Noted," "Revise and Resubmit," or "Rejected." Contractor shall resubmit the above number of corrected shop drawings for all shop drawings stamped "Revise and Resubmit" and "Rejected" and will continue this process until shop drawings are stamped "Approved," or "Approved as Noted." Installation shall not proceed until shop drawings have been resubmitted and stamped "Approved," or "Approved as Noted."
- H. If shop drawings are stamped "Approved as Noted" or "Revise and Resubmit" and Contractor does not agree with revisions or cannot conform with revisions, fabrication shall not proceed and shop drawings shall be resubmitted with explanation of Contractor's position.
- I. All shop drawings used for construction site activities shall bear "Approved" or "Approved as Noted" stamp of the Engineer.
- J. Arrangements may be made between the Contractor and the Engineer to provide additional copies of "Approved" shop drawings for field activity purposes.

#### 1.06 COLORS AND PATTERNS

- A. Unless the precise color and pattern is specifically described in the Contract Documents, whenever a choice of color or pattern is available in a specified product Contractor shall submit accurate color charts and pattern charts to Engineer for Owner's review and selection.
- B. Unless all available colors and patterns have identical wearing capabilities and are identically suited for the installation, Contractor shall completely describe the relative capabilities of each.

#### 1.07 SAMPLES AND FIELD MOCK-UPS

- A. Contractor shall provide samples and field mock-ups where noted or specified.
- B. Samples are physical examples which illustrate materials, equipment, or workmanship and establish standards by which the work will be judged.
- C. Samples shall be of sufficient size and quantity to clearly illustrate the functional characteristics of the product and full range of color, texture and pattern.
- D. Samples shall have labels firmly attached, bearing the following information:
  - 1. Name of project.
  - 2. Description of product and finish.
  - 3. Name of Contractor.
  - 4. Trade name and number of product.
  - 5. Standards met by the product.
- E. Approval of samples must be obtained prior to proceeding with any work affected by material requiring sample approval.
- F. Samples, unless otherwise noted, become the property of the Owner.
- G. In situations specifically approved by the Engineer, the retained sample may be used in the construction as one of the installed items.
- H. Field mock-ups:
  - 1. Contractor shall erect field mock-ups at the project site in a location acceptable to the Owner and the Engineer.
  - 2. When accepted by the Engineer, the mock-up will become the basis for comparison of the actual work.
  - 3. Remove mock-up at conclusion of the work if it was not incorporated into the work.

## 1.08 PRODUCT DATA

- A. Contractor shall provide product data as required to supplement shop drawings.
- B. Product data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by Contractor to illustrate a material, product or system for some portion of the work.
- C. Contractor shall collect required product data into one submittal for each unit of work or system.
- D. Contractor shall include manufacturer's standard printed recommendations for application and use, compliance with standards, performance characteristics, wiring and piping diagrams and controls, component parts, finishes, dimensions, required clearances, and other coordination requirements.
- E. Contractor shall mark each copy of standard printed data to identify pertinent products, models, options, and other data.
- F. Contractor shall supplement manufacturer's standard data to provide information unique to the work.
- G. Contractor shall identify within the data variations from Contract Documents and product or system limitations which may be detrimental to successful performance of the completed Work.

## 1.09 RESUBMITTAL REQUIREMENTS

- A. Contractor shall revise and resubmit submittals as required.
- B. Shop Drawings and Product Data:
  - 1. Revise initial drawings or data and resubmit as specified for initial submittal.
  - 2. Itemize in a cover letter any changes which have been made other than those requested by the Engineer.
- C. It is considered reasonable that the Contractor shall make a complete and acceptable submittal to the Engineer by the second submission of a submittal item. The Owner reserves the right to withhold monies due the Contractor to cover additional costs of the Engineer's review beyond the second submittal.

## 1.10 MANUFACTURER'S INSTRUCTIONS

- A. Manufactured articles, materials and equipment shall be stored, commissioned, operated, applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer, unless specified to the contrary.
- B. Whenever specifications call for work to be performed, or materials to be installed in accordance with the manufacturer's printed instructions or directions, Contractor shall furnish copies as required for shop drawings of those instructions or directions to Engineer before installing the material or performing the work.
- C. Contractor shall identify with the submittal any conflicts between manufacturers' instructions and Contract Documents.

## 1.11 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturers' certificate to Engineer for review.
- B. Contractor shall furnish copies as required for shop drawings of those certificates to Engineer before installing the material or performing the work.
- C. Certificates shall indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.
- D. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

## PART 2 PRODUCTS

Not Applicable.

## PART 3 EXECUTION

Not Applicable.

END OF SECTION

## **SECTION 01310**

### **PROGRESS SCHEDULES**

#### **PART 1 GENERAL**

##### **1.01 RELATED SECTIONS**

- A. Section 01300 – Submittals.

##### **1.02 FORMAT**

- A. Prepare schedules as a horizontal bar chart with separate bar for each major portion of Work or operation, identifying first workday of each week.
- B. Sequence of Listings: In the same sequence as the Bid Schedule contained within this Project Manual or the schedule of values provide for lump sum work.
- C. Scale and Spacing: To provide space for notations and revisions.
- D. Sheet Size: Minimum 8-1/2 X 11 inches. Maximum of 22" x 34". All sheets submitted shall be easily reproducible and not requiring to piece together more than 3 sheets.

##### **1.03 CONTENT**

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Identify work of separate stages, separate floors and other logically grouped activities.
- C. Provide sub-schedules to define critical portions of the entire schedule.
- D. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the last day of each month.
- E. Provide separate schedule of submittal dates for shop drawings, product data, and samples, including Owner furnished products, if applicable, and Products identified under Allowances, if applicable, and dates reviewed submittals will be required from Engineer. Indicate decision dates for selection of finishes.
- F. Indicate delivery dates for Owner furnished products and Products identified under Allowances, if applicable.



G. Coordinate content with bid schedule or schedule of values as appropriate.

#### 1.04 REVISIONS TO SCHEDULES

- A. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
- B. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
- C. Provide narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect, including the effect of changes on schedules of separate contractors.

#### 1.05 SUBMITTALS

- A. Submit Preliminary Progress Schedule in accordance with the requirements outlined in Paragraph 2.05 of the General Conditions.
- B. Submit revised Progress Schedules with each Application for Payment.

#### 1.06 DISTRIBUTION

- A. Distribute copies of reviewed schedules to Project site file, Subcontractors, suppliers, and other concerned parties.
- C. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.

### PART 2 PRODUCTS

Not Applicable.

### PART 3 EXECUTION

Not Applicable.

END OF SECTION

## **SECTION 01400**

### **QUALITY CONTROL**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Quality assurance and control of installation.
- B. References.
- C. Tolerances.
- D. Audio Video Recording of Site.
- E. Manufacturers' field services and reports.
- F. Manufacturer's certificates.
- G. Testing services.

##### **1.02 QUALITY ASSURANCE/CONTROL OF INSTALLATION**

- A. Contractor shall monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Contractor shall comply fully with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Contractor shall comply with specified standards as a minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Work shall be performed by persons qualified to produce workmanship of specified quality.
- F. Contractor shall secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

##### **1.03 REFERENCES**

- A. Conform to reference standard by date of issue current on date of Contract Documents.
- B. Obtain copies of standards when required by Contract Documents.
- C. Should specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

#### 1.04 TOLERANCES

- A. Contractor shall monitor tolerance control of installed products to produce acceptable work and shall not permit tolerances to accumulate.
- B. Contractor shall comply with manufacturer's tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Contractor shall adjust products to appropriate dimensions; position before securing products in place.

#### 1.05 AUDIO / VIDEO RECORDING OF SITE

##### A. Scope of Work

1. Furnish all labor, materials and equipment to furnish color video / audio recording of the project site in accordance with the drawings and as specified herein.
2. Furnish copies of a continuous color video / audio recording of the entire area within fifty (50) feet of the construction area to concerned parties as described below. The recording shall be taken prior to any construction activity.
3. The Engineer reserves the right to reject the audio / video recording because of poor quality, unintelligible audio or uncontrolled pan or zoom. Any recording rejected by the Engineer shall be rerecorded at no cost to the client. Under no circumstances shall construction begin until the Engineer has received and accepted the audio / video recording.
4. Unless otherwise authorized by Owner in writing, the recording shall be performed by a qualified, established audio / video recording firm knowledgeable in construction practices which has a minimum of one year of experience in the implementation of established inspection procedures.

5. The audio / video recording firm shall submit three letters of recommendation from municipalities, and/or engineering firms indicating previous experience and ability to perform the work described in this contract. Data substantiating qualifications must be submitted and accepted prior to performing the survey.
6. Prior to recording, all areas to be recorded shall be investigated visually with notation made of features not readily visible by recording methods. This would include but not limited to culverts (size, type and condition) and manholes that may be partially buried. Record all measurements made during inspection.

## B. Media

1. CD's
  - a. CD media shall be previously unrecorded standard quality CD-R's with "Slimline" cases, labeled as described below
2. Tapes
  - a. Audio / Video tape shall be original, previously unrecorded, professional grade video tapes, one-half inch, standard VHS format color video cassettes with cases, labeled as described below. Duplicate copies shall be limited to direct copies of the original tape and marked as such, labeled as described below.
3. Labeling
  - a. All recording media and cases shall bear labels with the following information:
    - 1) Media Number
    - 2) Owner's Name
    - 3) Date of Recording
    - 4) Project Name and Number
      - a) In a manner acceptable to the Engineer upon completion of the work and delivery of the media.
4. Ownership
  - a. All tapes and written records shall become the property of the Owner. Four copies of the finished audio / video recording shall be distributed to the following:
    - 1) One (1) copy to the Owner
    - 2) Two (2) copies to the Engineer
    - 3) One (1) copy to be retained by the Contractor

## C. Execution

1. Color Video / Audio Survey
  - a. Furnish a continuous color video / audio recording of the entire area within fifty (50) feet of construction in accordance with the drawings and as specified herein.

- b. Complete coverage shall include all surface features within 50 feet of the work area to be utilized by the Contractor and shall be supported by appropriate audio description made simultaneously with video coverage.
  - 1) General: Such coverage shall include, but not limited to, all existing driveways, sidewalks, curbs, ditches (drainage patterns are of particular concern), roadways (including condition of surface for full width, landscaping, trees, culverts, headwalls, catch basins, retaining walls, equipment, structures, pavements, manholes, vaults, handrails, fences, visible utilities, etc. and all buildings (interior and exterior) located within the aforementioned work zone. Video coverage shall extend to the maximum height of all structures within this zone. Of particular concern are existing faults, fractures, defects, or other imperfections.
  - 2) Streets: Unless otherwise noted, streets and street areas shall be recorded by audio / video tape for full width of the zone of influence of construction, including both sides of the street. The term street shall be understood to mean street, highway, avenue, boulevard, road, alley, lane, driveway, parking lot, etc., and all adjacent areas within the possible zones of the influence of construction.
  - 3) Easements: Easements shall be recorded by audio / video tape for the full width of the permanent and temporary easements and all other adjacent areas lying within the zone of influence of construction. Easements shall be understood to mean all areas not in streets that require tape coverage. Also, included in this coverage should be any areas that are intended to be used for construction access, storage, or waste disposal.
2. All recording shall be done during times of good visibility. No recording shall be done during periods of visible precipitation, or when more than ten percent of the ground area is covered with standing water, unless otherwise authorized by the Owner.
3. Each recording shall begin with the Owner's name, Contract name and number, the Contractor's name, date and location information such as street name, direction of travel, viewing side, etc.
4. Information appearing in the recording must be continuous and can simultaneously be computer generated, transparent digital information. No editing or overlaying of information at a later date will be acceptable.
5. Digital information to appear in the recording shall be as follows:
  - a. Name of Contractor
  - b. Month, Day, Year, Hour, Minutes and Seconds, electronically displayed accurately and continuously throughout the recording.
  - c. Name of project and Specification Number.
6. Time must be accurate and continuously generated.
7. Written documentation must coincide with the information on the tape so as to provide for easy retrieval of locations sought for at a later date.

8. The video system shall have the capability to transfer individual frames of video electronically into hard copy prints or photographic negatives.
9. Audio: All audio shall be recorded at the same time as the video recording and shall have the same information as on the viewing screen. Audio for each recording shall begin with the current date, project name and municipality, and be followed by the general locations (i.e. name of the street or property owner), location of cross county line, viewing side, and direction of progress. The engineering stationing (where required) shall be noted on the audio track. Houses and buildings shall be identified audibly by owner name and address where available. Special commentary shall be given for unusual conditions of buildings, sidewalks and curbing, foundations, trees and shrubbery, structures, equipment, pavement, etc.
10. Prior to commencement of audio / video recording, the Contractor shall notify the Engineer in writing when and where the audio / video recording will begin. The Engineer may provide a designated representative to accompany and oversee coverage of all recording operations. Audio / video recording completed without an engineering representative present will be unacceptable unless specifically authorized by the Engineer.

#### 1.06 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. When specified in individual specification sections or when requested by Engineer, Contractor shall require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions of surfaces and installation, and quality of workmanship.
- B. Contractor shall submit qualifications of observer to Engineer 30 days in advance of required observations.
- C. Contractor shall report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer' written instructions.
- D. Contractor shall submit report in duplicate within 30 days of observation to Engineer for information.

#### 1.07 MANUFACTURERS' CERTIFICATES

- A. When required by specified sections, submit three copies of manufacturer's certificates that certify the products meet or exceed specified requirements.

### PART 2 PRODUCTS

Not Applicable.

PART 3 EXECUTION

Not Applicable.

END OF SECTION

## **SECTION 01500**

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

#### **PART 1 GENERAL**

##### **1.01 SUMMARY**

###### **A. Work Included:**

1. Temporary utilities.
2. Barriers.
3. Tree removal.
4. Contractor office and storage shed(s).
5. Engineer's field office.
6. Protection of installed work.
7. Temporary support facilities.
8. Removal of utilities, facilities, and controls.
9. Dust control.
10. Water, erosion and sediment control.
11. Noise control.
12. Traffic control.
13. Site security.
14. Site cleanup.

B. Contractor shall arrange for and provide temporary facilities as specified herein and as required for proper and expeditious prosecution of the Work.

C. Contractor shall pay all costs, except as otherwise specified, until final acceptance of the Work unless Owner makes arrangements for use of completed portions of the Work after substantial completion in accordance with the provisions of the General Conditions.

D. Contractor shall make all temporary connections to utilities and services in locations acceptable to Owner and local authorities having appropriate jurisdiction.

1. Furnish all necessary labor and materials.
2. Make all installations in a manner subject to the acceptance of such authorities and Owner.
3. Maintain such connections.
4. Remove temporary installation and connection when no longer required.
5. Restore services and sources of supply to proper operating conditions.

##### **1.02 TEMPORARY UTILITIES**



A. Temporary Electricity

1. Arrange for and provide for all temporary electrical service required for the project. Provide for all temporary drops required by the work.
2. All work shall comply with all local, state and federal requirements. Include lock-out tag-out procedures and devices as necessary.

B. Temporary Lighting

1. Provide lighting as required of the various trades and the work being performed.

C. Temporary Sanitary Facilities

1. Provide and maintain required facilities and enclosures.
2. Provide sufficient number for number of workmen and women employed. Locate near work areas. Perform regular maintenance as needed to control odors.
3. At end of construction, remove facilities or return existing facilities to same or better condition as originally found.

D. Temporary Water

1. Owner will provide, at no cost, water from adjacent hydrants for normal construction purposes.
2. Contractor shall not waste water. If it is determined that water is being wasted, the Contractor shall pay the Owner the cost of ALL water utilized in the work.
3. Contractor must obtain permission from the water utility to utilize a hydrant for this purpose. He will also demonstrate to the water utility that he will utilize the proper method of opening and closing the hydrant valves.
4. Contractor shall provide appropriate backflow device to prevent contamination of the water system.

E. Temporary Fire Protection

1. Contractor and Subcontractors who maintain or provide an enclosed shed or trailer shall provide and maintain in operating order in each shed or trailer a minimum of one fire extinguisher. More extinguishers shall be provided as necessary. Fire extinguishers shall be minimum dry chemical, nonfreezing type, UL rating 2A-30BC, with 10 pound capacity for Class A, B and C fires.

1.03 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas, to allow for Owner's use of site, and to protect existing facilities and adjacent properties from damage from construction activities and demolition.
- B. Provide barricades required by governing authorities for public rights-of-way.
- C. Protect vehicular traffic, stored materials, site, and structures from damage.

#### 1.04 TREE REMOVAL

- A. No tree removal will be permitted outside the designated construction work limits without permission of the Owner.
- B. Trees which are not removed will be protected by ensuring that trees to be removed are felled so as not to injure the remaining trees.
- C. Prior to site clearing or tree trimming, the Contractor and Owner shall walk the site in an effort to designate the trees to be saved and those to be trimmed back or removed. A barrier will be placed at an appropriate distance from the trunks and root systems of the trees to remain.
- D. Soil and other materials will not be stored next to or within the drip-line of trees.
- E. The Contractor shall repair all injuries to bark, trunks, limbs, and roots of remaining vegetation by properly dressing, cutting, bracing, and painting using only approved tree surgery methods, tools, and materials.
- F. Selective pruning of tree limbs prior to initiation of construction should only be used within the established construction work limits where removal is required for construction activities.

#### 1.05 CONTRACTOR OFFICE AND STORAGE SHED(S)

- A. Contractor shall provide facilities to meet Contractor's needs.
- B. Provide telephone as required for Contractor's needs. At a minimum, Contractor shall maintain telephone service to the project site to facilitate communication with site supervisory personnel.
- C. Maintain a copy of the Contract Documents for the specific use of marking to reflect the construction records. Clearly indicate in red the modifications or alterations to the original documents. Attach supporting documentation as necessary. The Contractor shall continually update these documents.

- D. Provide storage areas and sheds of size to meet storage requirements for products of individual sections, allowing for access and orderly provision for maintenance and for observation of products to meet requirements of Section 01600 – Materials and Equipment.

#### 1.06 ENGINEER'S FIELD OFFICE

- A. None Required.

#### 1.07 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to prevent damage.
- C. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- D. Prohibit traffic from landscaped areas.

#### 1.08 TEMPORARY SUPPORT FACILITIES

- A. Contractor shall provide whatever facilities and services which may be needed to properly support primary construction processes and meet compliance requirements and governing regulations.
- B. Contractor shall not use permanent facilities except as otherwise indicated, unless authorized by Owner.

#### 1.09 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, and materials just prior to final completion inspection.
- B. Clean and repair damage caused by installation or use of temporary facilities.
- C. Restore existing facilities used during construction to specified, or to original or better condition.

### PART 2 PRODUCTS

Not Applicable.

## PART 3 EXECUTION

### 3.01 DUST CONTROL

- A. Contractor shall execute the Work by methods to minimize raising dust from construction operations.
- B. Contractor shall provide positive means to prevent airborne dust from dispersing into atmosphere.

### 3.02 WATER, EROSION AND SEDIMENT CONTROL

- A. Contractor shall grade site to drain and shall maintain excavations free of water. Provide, operate and maintain pumping equipment.
- B. Contractor shall protect site from puddling or running water.
- C. Contractor shall provide erosion control measures as necessary to control discharge of sediment laden water to surface waters and wetlands.
- D. Except as provided in the Contract Documents, overland discharge of water from dewatering operations shall not be allowed. Depending on water quality, such water shall either be piped directly to the surface water or shall be directed to sedimentation basins or other such structures or features prior to discharge to surface waters so as not to cause damage to existing ground and improvements, erosion, or deposition in the discharge area.
- E. Contractor shall use jute or synthetic netting, silt fences, straw bales, dikes, channels and other applicable measures to prevent erosion of soils disturbed by its construction operation.
- F. Restoration of the site shall proceed concurrently with the construction operation. See Drawings and Specifications for erosion control measures in addition to that which may be required above.

### 3.03 NOISE CONTROL

- A. Provide methods, means and facilities to minimize noise produced by construction operations.

### 3.04 TRAFFIC CONTROL

- A. Contractor shall be responsible for providing all signs, barricades, flagmen and other traffic control devices in the construction zone.

- B. All traffic control measures shall meet the requirements of the Ohio Manual of Uniform Traffic Control Devices.
- C. Do not close or obstruct roadways without approval of the Owner.
- D. Maintain two-way traffic on streets at all times unless the Owner and the governing agency authorize one-way traffic for given areas and during specific operations.
- E. Conduct construction operations with minimum interference to roadways.

### 3.05 SITE SECURITY

- A. Contractor shall have the sole responsibility of safeguarding the Site perimeter to prevent unauthorized entry to the Site throughout the duration of the Project. Contractor shall at all times provide such permanent and temporary fencing or barricades or other measures as may be necessary to restrict unauthorized entry to its construction area including construction in public right-of-way or easements. Site security measures shall include safeguards against attractive nuisance hazards as a result of construction activity.
- B. Contractor shall at all times be responsible for the security of the Work including materials and equipment. Owner will not take any responsibility for missing or damaged equipment, tools, or personal belongings. Contractor shall have the sole responsibility of safeguarding the Work and the Site throughout the duration of the Project.

### 3.06 SITE CLEANUP

- A. Contractor shall clean up the Site and remove all rubbish on a weekly basis unless a more frequent interval is warranted by the volume or type of rubbish present.
- B. Contractor shall cleanup public streets and highways and remove any dirt, mud, or other materials due to project traffic on a daily basis and shall comply with all local and state ordinances and permit regulations.

END OF SECTION

## **SECTION 01600**

### **MATERIAL AND EQUIPMENT**

#### **PART 1 GENERAL**

##### **1.01 SUMMARY**

- A. Work Included: Contractor shall be responsible for the delivery, handling, storage and protection of all material and equipment required to complete the Work as specified herein.
- B. Related Sections and Divisions: Specific requirements for the handling and storage of material and equipment are described in other sections of these Specifications.

##### **1.02 RELATED SECTIONS**

- A. Bid Documents - Instructions to Bidders: Product options and substitution procedures.
- B. Section 01300 - Submittals

##### **1.03 PRODUCTS**

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
- B. Provide interchangeable components of the same manufacturer, for similar components.
- C. When any construction deviations from the Drawings and/or Specifications necessary to accommodate equipment supplied by Contractor result in additional costs to the Contractor or other contractors, such additional costs shall be borne by the Contractor. Contractor shall also pay any additional costs necessary for revisions of Drawings and/or Specifications by the Engineer.
- D. Each major component of equipment shall bear a nameplate giving the name and address of the manufacturer and the catalog number or designation.

##### **1.04 TRANSPORTATION AND HANDLING**

- A. Materials, products and equipment shall be properly containerized, packaged, boxed and protected to prevent damage during transportation and handling.
- B. Contractor shall not overload any portion of the structure in the transporting or storage of materials.
- C. Contractor shall not damage other construction by careless transportation, handling, spillage, staining or impact of materials.
- D. Contractor shall provide equipment and personnel to handle products, including those provided by Owner, by methods to prevent soiling and damage.
- E. Contractor shall provide additional protection during handling to prevent marring and otherwise damaging products, packaging and surrounding surfaces.
- F. Contractor shall handle products by methods to avoid bending or overstressing. Lift large and heavy components only at designated lift points.

#### 1.05 DELIVERY AND RECEIVING

- A. Contractor shall arrange deliveries of products in accordance with the Progress Schedule, allowing time for observation prior to installation.
- B. Contractor shall coordinate deliveries to avoid conflict with the Work and conditions of the Site; limitations on storage space; and availability of personnel and handling equipment.
- C. Contractor shall deliver products in undamaged, dry condition, in original unopened containers or packaging with identifying labels intact and legible.
- D. Contractor shall clearly mark partial deliveries of component parts of equipment to identify equipment and contents to permit easy accumulation of parts and to facilitate assembly.
- E. Immediately upon delivery, Contractor shall inspect shipment to assure:
  - 1. Product complies with requirements of Contract Documents and reviewed submittals.
  - 2. Quantities are correct.
  - 3. Accessories and installation hardware are correct.
  - 4. Containers and packages are intact and labels legible.

5. Products are protected and undamaged.

#### 1.06 STORAGE AND PROTECTION

- A. Contractor shall store products, immediately on delivery, in accordance with manufacturer's instructions, with seals and labels intact and legible.
- B. Equipment Manufacturer shall coordinate with Contractor to clarify storage requirements for equipment to be delivered to the site. Coordination shall be completed in advance of the projected delivery date to assure adequate facilities will be available for protection of the equipment.
- C. In enclosed storage, Contractor shall:
  - 1. Provide suitable temporary weather tight storage facilities as may be required for materials that will be damaged by storage in the open.
  - 2. Maintain temperature and humidity within ranges stated in the manufacturer's instructions.
  - 3. Provide ventilation for sensitive products as required by manufacturer's instructions.
  - 4. Store unpacked and loose products on shelves, in bins or in neat groups of like items.
  - 5. Store solid materials such as insulation, tile, mechanical and electrical equipment, fittings, and fixtures under shelter, in original packages, away from dampness and other hazards.
  - 6. Store liquid materials away from fire or intense heat and protect from freezing.
- D. At exterior storage, Contractor shall:
  - 1. Store unit materials such as concrete block, brick, steel, pipe, conduit, door frames and lumber off ground, out of reach of dirt, water, mud and splashing.
  - 2. Store tools or equipment that carry dirt outside.
  - 3. Store large equipment so as to not damage the Work or present a fire hazard.
  - 4. Cover products subject to discoloration or detention from exposure to the elements, with impervious sheet material and provide ventilation to avoid condensation.
  - 5. Completely cover and protect equipment or material that is prime coated or finish painted with secured plastic or cloth tarps. Store out of reach of dirt, water, mud and splashing.
  - 6. Store loose granular materials on clean, solid surfaces such as pavement, or on rigid sheet materials, to prevent mixing with foreign matter.
  - 7. Provide surface drainage to prevent erosion and ponding of water.



8. Prevent mixing of refuse or chemically injurious materials or liquids.
9. Cover aggregates such as sand and gravel in cold wet weather.
10. Remove all traces of piled bulk materials at completion of work and return site to original or indicated condition.

#### 1.07 MAINTENANCE OF STORAGE

- A. Contractor shall periodically inspect stored products on a scheduled basis.
- B. Contractor shall verify that storage facilities comply with manufacturer's product storage requirements, and verify that the manufacturer's required environmental conditions are maintained continually.
- C. Contractor shall verify that surfaces of products exposed to the elements are not adversely affected and that any weathering of finishes is acceptable under requirements of the Contract Documents.
- D. Contractor shall perform scheduled maintenance of equipment in storage as recommended by the manufacturer. A record of the maintenance shall be kept and turned over to the Engineer when the equipment is installed.

#### 1.08 INSTALLATION REQUIREMENTS

- A. Manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as directed by the respective manufacturers, unless otherwise noted.
- B. After installation, Contractor shall protect all materials and equipment against weather, dust, moisture, and mechanical damage.
- C. Contractor shall be responsible for all damages that occur in connection with the care and protection of materials and equipment until completion and final acceptance of the Work by the Owner. Damaged material and equipment shall be immediately removed from the Site.

#### 1.09 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.

- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

#### 1.10 SUBSTITUTIONS AFTER NOTICE TO PROCEED

- A. Engineer will consider requests for Substitutions only within 45 days after date of Notice to Proceed.
- B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. A request constitutes a representation that the Contractor:
  - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
  - 2. Will provide the same warranty for the Substitution as for the specified product.
  - 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
  - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
  - 5. Will reimburse Owner for review or redesign services associated with re-approval by authorities.
  - 6. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

#### 1.11 SUBSTITUTION SUBMITTAL PROCEDURE

- A. Submit in accordance with Section 01300 - Submittals.
- B. The Engineer will notify Contractor, in writing, of decision to accept or reject request.

### PART 2 PRODUCTS

Not Applicable.

### PART 3 EXECUTION

Not Applicable.

END OF SECTION

## **SECTION 01650**

### **STARTING OF SYSTEMS**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Starting systems.
- B. Demonstration and instructions.

##### **1.02 RELATED SECTIONS**

- A. Section 01700 - Contract Closeout: System operation and maintenance data and extra materials.

##### **1.03 STARTING SYSTEMS**

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Engineer and Owner a minimum of ten (10) working days prior to start-up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions which may cause damage to the equipment or materials.
- D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of responsible manufacturer's representative in accordance with manufacturers' instructions and contract documents.
- G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

#### 1.04 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of Products to Owner's personnel prior to date of Substantial Completion.
- B. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owners' personnel in detail to explain all aspects of operation and maintenance.
- C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times, at equipment location.
- D. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

#### PART 2 PRODUCTS

Not Applicable.

#### PART 3 EXECUTION

Not Applicable.

END OF SECTION

## **SECTION 01700**

### **CONTRACT CLOSEOUT**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Closeout procedures.
- B. Final cleaning.
- C. Adjusting.
- D. Operation and maintenance data.
- E. Warranties.
- F. Spare parts and maintenance materials.

##### **1.02 CLOSEOUT PROCEDURES**

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Owner's inspection.
- B. Provide submittals to Owner that are required by governing or other authorities.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

##### **1.03 FINAL CLEANING**

- A. It is the Contractor's responsibility to completely clean up the construction site at the completion of the Work.

##### **1.04 ADJUSTING**

- A. Contractor shall adjust operating products and equipment to ensure smooth and unhindered operation.

##### **1.05 OPERATION AND MAINTENANCE DATA**

- A. Provide per Section 01730.

##### **1.06 WARRANTIES**

- A. Contractor shall provide warranties beyond one year warranty as required by technical sections and as follows:
  - 1. Provide duplicate notarized copies of equipment warranty.
  - 2. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.
- B. Include in the Operation and Maintenance Manual.
- C. Submit prior to request for Substantial Completion..
- D. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

#### 1.07 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Contractor shall provide spare parts and maintenance materials as outlined in the specification sections related to the equipment supplied.
- B. Include in the Operation and Maintenance Manual.
- C. Submit prior to final Application for Payment.

#### PART 2 PRODUCTS

Not Applicable.

#### PART 3 EXECUTION

Not Applicable.

END OF SECTION

## **SECTION 01730**

### **OPERATION AND MAINTENANCE DATA**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Format and content of manuals.
- B. Schedule of submittals.

##### **1.02 RELATED SECTIONS**

- A. Section 01300 - Submittals: Submittals procedures; Shop drawings, product data, and samples.
- B. Section 01600 - Material and Equipment: Systems demonstration.
- C. Section 01700 - Contract Closeout: Contract Closeout Procedures; Project Record Documents.
- D. Individual Specifications Sections: Specific requirements for operation and maintenance data.

##### **1.03 QUALITY ASSURANCE**

- A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

##### **1.04 FORMAT**

- A. Prepare data in the form of an instructional manual.
- B. Binders: Commercial quality, 8-1/2 x 11 inch three-ring binders with hardback, cleanable, plastic covers. When multiple binders are used, correlate data into related consistent groupings.
- C. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; list title of Project; identify subject matter of contents.
- D. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.



- E. Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- F. Text: Manufacturer's printed data, or typewritten data on 24 pound paper.
- G. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

#### 1.05 CONTENTS, EACH VOLUME

- A. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Engineer, sub-consultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.
- B. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- C. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- D. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- E. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.
- F. Warranties and Bonds: Bind in copy of each.

#### 1.06 MANUAL FOR MATERIALS AND FINISHES

- A. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Provide information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

- C. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- D. Additional Requirements: As specified in individual product specification Sections.

#### 1.07 SUBMITTALS

- A. Submit one copy of preliminary draft or proposed format and outline of content before start of Work. Engineer will review draft and return copy with comments.
- B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.
- C. Submit one copy of completed volumes in final form 15 days prior to final inspection. Copy will be returned after final inspection, with Engineer comments. Revise content of documents as required prior to final submittal.
- D. After approval of draft by Engineer, Contractor shall submit three copies to Owner.

#### PART 2 PRODUCTS

Not Applicable.

#### PART 3 EXECUTION

Not Applicable.

END OF SECTION

## **SECTION 01730**

### **OPERATION AND MAINTENANCE DATA**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Format and content of manuals.
- B. Schedule of submittals.

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#### PART 2 PRODUCTS

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#### PART 3 EXECUTION

Not Applicable.

END OF SECTION