

**SECTION 01600****MATERIAL AND EQUIPMENT SHIPMENT,  
HANDLING, STORAGE, AND PROTECTION****PART 1 GENERAL**

## 1.01 SCOPE OF WORK

- A. This shall include both MDWASD and Contractor supplied material and equipment.
- B. The Contractor is to inform all subcontractors, suppliers, and manufacturers of the requirements herein specified and shall include expenses for the following services in his costs for compliance with the requirements hereinafter specified.

## 1.02 PREPARATION FOR SHIPMENT

- A. When practical, equipment shall be factory-assembled. The equipment parts and assemblies that are shipped unassembled shall be furnished with assembly plan and instructions. The separate parts and assemblies shall be factory match-marked or tagged in a manner to facilitate assembly. All assemblies are to be made by the Contractor at no additional cost to MDWASD.
- B. Machined and unpainted parts subject to damage by the elements shall be protected with an application of a strippable protective coating, or other approved protective method.
- C. Equipment shall be packaged or crated in a manner that will provide protection from damage during shipping, handling, and storage.
- D. The outside of the package or crate shall be adequately marked or tagged to indicate its contents by name and equipment number, if applicable; approximate weight; state any special precautions for handling; and indicate the recommended requirements for storage prior to installation.

## 1.03 PACKING AND DELIVERY OF SPARE PARTS AND SPECIAL TOOLS

- A. Properly mark to identify the associated equipment by name, equipment, and part number. Parts shall be packaged in a manner for protection against damage from the elements during shipping, handling, and storage. Ship in boxes that are marked to indicate the contents. Delivery of spare parts and special tools shall be made prior to the time associated equipment is scheduled for the initial test run.

## 1.04 SHIPMENT

- A. All equipment and material shall be shipped with freight and shipping paid FOB

jobsite.

- B. The Contractor shall request a 7-day advance Notice of Shipment from manufacturers, and, upon receipt of such notice, provide the Engineer with a copy of the current delivery information concerning equipment items and material items of critical importance to the project schedule.
- C. Schedule delivery to reduce long term on-site storage prior to installation and/or operation. Under no circumstances shall equipment be delivered to the site more than one month prior to installation without written authorization from the Engineer.
- D. Coordinate delivery with installation to ensure minimum holding time for items that are hazardous, flammable, easily damaged or sensitive to deterioration.

#### 1.05 RECEIVING

- A. The Contractor shall unload and record the receipt of all equipment and materials at the jobsite.
- B. All costs for receiving, inspection, handling, storage, insurance, inventory control, and equipment maintenance for both for both the Contractor-supplied and MDWASD-supplied materials and equipment shall be included in the prices bid and no extra compensation will be allowed.

#### 1.06 INSPECTION

- A. Immediately upon receipt of equipment and materials at the jobsite, the Contractor shall inspect for completeness and any evidence of damage during shipment. MDWASD's supplied equipment and material shall be inspected and inventoried together with MDWASD's inspector. Should there appear to be any shortage or damage, the Engineer shall be immediately notified; and the Contractor shall be fully responsible for informing the manufacturers and the transportation company of the extent of the shortage or damage. If the item or items require replacing or supplying missing parts, the Contractor shall take the necessary measures to expedite the replacement or supply of the missing parts.

#### 1.07 HANDLING

- A. Equipment and materials received for installation on this Project shall be handled in accordance with the manufacturer's recommendations, and in a manner that will prevent damage.
- B. Pipe and fittings shall at all times be handled with great care to avoid damage. In loading and unloading, they shall be lifted with cranes or hoists or slid or rolled on skidways in such a manner as to avoid shock. Under no circumstances shall this material be dropped or allowed to roll or slide against obstructions. No cables, lifting arms, hooks or other devices shall be inserted into the pipe or fitting. All

lifting, pulling or pushing mechanisms shall be applied to the exterior of the pipe or fitting. Pipe and other material shall be distributed along the right-of-way in advance of installation only to the extent approved by the Engineer. Pipe shall be stored on blocking or timber. It shall not be stored on rocks, boulders, or other supports which in the opinion of the Engineer are unsuitable. Such materials shall be so placed as to keep obstruction to traffic to a minimum.

#### 1.08 STORAGE AND PROTECTION

- A. Equipment and materials shall be stored prior to installation as recommended by the manufacturer. Generally, materials such as pipe shall be stored off the ground in approved storage yards or along the line of the proposed pipeline as approved by the Engineer. Items subject to the damage by the elements, vandalism, or theft shall be stored in secure buildings. Items requiring environmental control for protection shall be provided with the necessary environmentally controlled storage facilities at no cost to MDWASD.
- B. Store and protect products in accordance with the manufacturer's instructions, with seals and labels intact and legible. Storage instructions shall be studied by the Contractor and he shall review them with the engineer. Instructions shall be carefully followed and a written record of this kept by the Contractor. Arrange storage to permit access for inspection.
- C. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- D. Cement and lime shall be stored under a roof and off the ground and shall be kept completely dry at all times. All structural, miscellaneous and reinforcing steel shall be stored off the ground or otherwise to prevent accumulations of dirt or grease, and in a position to prevent accumulations of standing water and to minimize rusting. Beams shall be stored, the webs vertical. Precast concrete shall be handled and stored in a manner to prevent accumulations of dirt, standing water, staining, chipping or cracking. brick, block and similar masonry products shall be handled and stored in a manner to reduce breakage, cracking and spalling to a minimum.
- E. All mechanical, electrical and other equipment, instruments and other items subject to damage if stored outdoors (even though covered by canvas) shall be stored in a weather tight building to prevent injury. The building, even if temporary, must be satisfactory to the Engineer. Building shall be provided with adequate ventilation to prevent condensation. Maintain temperature and humidity within range required by manufacturer.
  - 1. All equipment shall be stored fully lubricated with oil, grease and other lubricants unless otherwise instructed by the manufacturer.
  - 2. Moving parts shall be rotated a minimum of once weekly to insure proper lubrication and to avoid metal-to-metal "welding". Upon installation of the equipment, the Contractor shall start the equipment at least half load, once

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weekly for an adequate period of time to ensure that the equipment does not deteriorate from lack of use.

3. Lubricants shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. New lubricants shall be put into the equipment at the time of final acceptance.
  4. Prior to final acceptance of the equipment, the Contractor shall have the manufacturer inspect the equipment and certify that its condition has not been detrimentally affected by the long storage period. Such certifications by the manufacturer shall be deemed to mean that the equipment is judged by the manufacturer to be in a condition equal to that of equipment that has been shipped, installed, tested and accepted in a minimum time period. As such, the manufacturer will guaranty the equipment equally in both instances. If such a certification is not given, the equipment shall be judged to be defective. It shall be removed and replaced at the Contractor's expense.
- F. All bolts, nuts, gaskets and other joint materials for use in pipelines shall be stored under cover.
- G. Gaskets shall be stored in their original packing bags or containers, and care shall be exercised to keep them away from heat, light, oil gasoline or other petroleum products. Gaskets shall be kept clean at all times and not handled with greasy or dirty hands.
- H. Plastic pipe and other elastomeric products shall be stored under cover to preclude damage by ultraviolet radiation even if the product has UV inhibitors in its compound.
- I. Valves and other equipment having heating elements to eliminate moisture accumulation shall be supplied with electrical power of the required characteristics.

#### 1.09 INSURANCE

- A. The Contractor's insurance shall adequately cover the value of materials delivered but not yet incorporated into the work. The Contractor and MDWASD shall be named as co-insured insofar as their respective interests may appear. Proof of this coverage must be submitted to the Engineer at the time request for progress or partial payments.

#### 1.10 INVENTORY CONTROL

- A. Equipment and materials shall be stored in a manner to provide easy access for inspection and inventory control. The Contractor shall keep a running account of all materials in storage to facilitate inspection and to estimate progress payments for materials delivered but not installed in the work.

1.11 EQUIPMENT MAINTENANCE PRIOR TO DEPARTMENT'S ACCEPTANCE

- A. Provide the required or manufacturer's recommended maintenance during storage, during the installation, and until such time as MDWASD accepts the equipment for full-time operation.

1.12 SALVABLE EQUIPMENT

- A. Any salvable pipe, fitting, or other miscellaneous material or equipment removed during construction and not reused in the work shall be cleaned, hauled, and stored by the Contractor at his own expense, where directed by the Engineer, and shall remain the property of MDWASD. All other material shall be disposed of by the Contractor at his own expense.

**PART 2 PRODUCTS**

NOT USED

**PART 3 EXECUTION**

NOT USED

**END OF SECTION**