ITEM I – SLIDE GATES

A. Slide gate sizes and quantities are as follows:

12- 48" x 48" gates
2 - 42" x 42" gates
2 - 54" x 54" gates
1 - 42" x 48" gate
1 - 36" x 48" gate

(The Contractor shall verify all existing gate dimensions and sizes prior to purchasing the gates and related equipment and all new gates shall be compatible with the existing gate openings.)

B. Approved slide gate manufacturers are:
   1. Rodney Hunt
   2. RW Gate Company
   3. Waterman
   4. Whipps

   Requests for substitutions must be received at least 14 days prior to close of the bidding period. Approved alternates will be added by addendum.

C. Slide gates shall have a wall-mounted frame, pedestal-mounted gear box, and rising stem operator.

D. The gates and appurtenances shall be supplied in accordance with the latest edition of AWWA C561 Standard for Fabricated Stainless Steel Slide Gates as modified herein. The allowable leakage rate for the stainless steel gates in this specification shall be 1/2 the allowable leakage listed in the latest revision of AWWA C561 (currently 0.1 gpm/ft of sealing perimeter).

E. Materials
   1. Materials subject to dezincification or dealuminization prohibited.
   2. "L" grades for all welded components.
   3. Frame, guides, slide, yoke, and stem guides:
      a) All structural components of the frame and slide shall be fabricated of stainless steel 316 or 316L, having a minimum thickness of 1/4-inch and shall have adequate strength to prevent distortion during normal handling, during installation and while in service.
      b) Rigid one-piece frame configuration shall be of the flush-bottom type and shall allow the replacement of the top and side seals without removing the gate frame from the concrete wall.

c) The frame shall be of the flange back design suitable for mounting on a concrete wall. Manufacturer shall provide neoprene frame seal (3/4" thickness) for installation between concrete wall and frame flange.
d) Guide slot shall be made of ultra-high molecular weight polyethylene (UHMWPE).
e) The slide shall consist of a flat plate reinforced with formed plates or structural members to limit its deflection to less than 1/360 of the gate's span under the design head.

4. Anchor bolts, fasteners, and Rising Stem Thrust Nuts shall be stainless steel, Type 316. Bolt-hole openings shall be epoxied to prevent corrosion of anchor points.
5. Seals:
   a) Slide gate side and top seals shall be made of UV stabilized ultra-high molecular weight polyethylene (UHMW-PE) of the self-adjusting type and shall be of such length as to retain and support at least two thirds (2/3) of the vertical height of the slide in the fully open position. A continuous compression cord shall ensure contact between the UHMWPE guide and the gate in all positions. The sealing system shall maintain efficient sealing in any position of the slide and allow water to flow only in the opened part of the gate. The bottom seal shall be made of resilient neoprene set into the bottom member of the frame and shall form a flush bottom.
6. Stems:
   a) Stainless steel, type 316 designed to transmit in compression at least 2 times the rated output of the operating manual mechanism with a 40 pound effort on the crank. Stem shall have a slenderness ratio (L/r) less than 200.
   b) The threaded portion of the stem shall have a minimum outside diameter of 2 inches.
   c) Slide gate stem guides shall be stainless steel and shall be equipped with UHMWPE bushings. Guides shall be adjustable and spaced in accordance with manufacturer's recommendations
   d) Slide gate stem shall be provided with a clear polycarbonate stem cover. The stem cover shall have a cap and condensation vents and a clear mylar position indicating tape. The tape shall be field applied to the stem cover after the gate has been installed and positioned.
   e) Slide gate lifting mechanism shall be yoke-mounted manual hoist of type recommended by manufacturer. All bearings and gears shall be totally enclosed in a weather-tight housing. The pinion shaft shall be constructed of stainless steel and supported by roller or needle bearings. Manual operators shall be designed to operate the gate by using a maximum effort of 40 pounds on the crank and shall be able to withstand, without damage an effort of 80 pounds. The crank shall be removable and fitted with a corrosion-resistant

rotating handle. The maximum crank radius shall be 15 inches. Yoke shall be made of structural members or formed plates. Maximum deflection of the yoke shall be 1/360 of the gate's span.

F. Installation

1. Slide gates and appurtenances shall be installed in accordance with the manufacturer's recommendations.
2. Order of construction:
   a) Install stop-log in influent channel, between gate 25 and 54" recirculation pipe
   b) Close west side effluent gates in basin 2.
   c) Drain west side of basin 3. Install pipe plugs if necessary.
   d) Replace gates 26-32.
   e) Re-water west side of basin 3 and test gates for leaks. De-water and repair as necessary.
   f) Remove stop-log.
   g) Close gate 26 in basin 3 and east side effluent gates in basin 2.
   h) Drain east side of basin 3. Install pipe plugs if necessary.
   i) Replace gates 20-25.
   j) Re-water east side of basin 3 and test gates for leaks. De-water and repair as necessary.
3. It shall be the Contractor's responsibility to review and determine if the above construction sequence is functional for his crews and work schedule. Should the Contractor feel that revisions are needed, he shall provide the Owner with a written detailed work schedule showing which basins will be closed and which gates are to be worked on when the basin is "down".
4. Under no circumstances shall "divers" be used without the express and written consent of the Owner. Further, under no circumstances shall be number of basins "down" exceed those in the below suggested Order of Construction.
5. No operation by the Contractor shall be proposed nor constructed (or attempted to be constructed) which would cause the Plant to be in non-compliance with State, Local or Federal regulations with regard to Operational Limits or the safety of employees or other personnel.
6. If stop logs or bulkheads are utilized, they shall be designed, constructed and installed in such a manner so as to insure the health, safety and welfare of the workers and plant operations. Stop logs or bulkheads, if used, shall provide a relatively watertight seal between the stop logs and the channel walls. If minor leakage occurs, a sump pump system shall be provided to ensure that the work cavity is dry and free from standing water (sewage). They shall be reinforced and/or braced to withstand full channel effluent loads and to accommodate sufficient work space for workers to safely and adequately do the gate repairs.

G. Quality Control

1. The Contractor shall employ and pay for services of the equipment manufacturer's field service representative(s) to:
   a) Inspect equipment covered by these specifications.
   b) Supervise adjustments and installation checks.
   c) Provide test equipment, tools, and instruments necessary to accomplish equipment testing.
   d) Conduct initial start-up of equipment, perform operational checks, and supervise acceptance testing in presence of the Project Engineer.
   e) Provide, through the Contractor, a written statement that the manufacturer's equipment has been installed properly, started up, and is ready for operation by Owner's personnel.
   f) Test under design seating head and adjust to maximum leakage rate of 0.05 gpm/ft of sealing perimeter. For the subject gates, this leakage rate will be 0.8 gal/min.